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## Will You Know If Your A/C Goes Down?

Sensatronics Ensures Effective Monitoring & Reliability

**ENVIRONMENTAL MONITORING HELPS** you keep track of vital temperature, humidity, and other information, ensuring your physical infrastructure can perform at the highest possible level. But having an environmental monitoring solution in place is just one step. Knowing that the proper personnel are alerted (and receive those alerts) in case of emergency is essential.

Sensatronics not only understands the importance of environmental monitoring, but also the significance of consistent status checks. Its Senturion EIDS (Environmental Intrusion Detection System) is an easy-to-use solution that provides environmental monitoring data and alerts whenever it senses a potential problem in your data center.

says Keith Wright, CEO and owner of Sensatronics. “But not everyone understands the importance of monthly testing of the alerting system. Without a documented process for routinely testing your alerting system, you may have a problem and not know it until it’s too late and you’ve already lost a lot of money.”

That’s why when you purchase your Senturion EIDS, you also get a free 15-minute one-on-one meeting with a Sensatronics tech, who will give you an overview of the Web interface, confirm the

ager with a quick status on the temperature and other environmental conditions within their data center, the message also serves as a ‘feel-good’ email that gives additional confidence that nothing is blocking email from reaching its final destination,” he says. After all, if there is an environmental issue in your data center and you aren’t receiving alerts, you may not be able to address it before there is serious damage.

Beyond that, Wright says he recommends Senturion EIDS users set up the

system to send one daily status email at 4 or 5 a.m. each day, which they can auto filter in their email client. “You should have seven status emails by the end of the week, and 30 status emails by the end of the month,” he says. If for some reason you receive fewer emails than that, you can take proactive steps to determine what is blocking the alerts and possibly avoid a bad situation where a real alert goes undetected due to a block in the email alerting system, says Wright. ■

“Without a documented process for routinely testing your alerting system, you may have a problem and not know it until it’s too late and you’ve already lost a lot of money.”

- Sensatronics' Keith Wright

SENSATRONICS



### Sensatronics Senturion Environmental Intrusion Detection System

(800) 633-1033  
[www.sensatronics.com](http://www.sensatronics.com)

The Senturion EIDS has three built-in monitoring tools for temperature, humidity, and light and has room for eight additional probes that can provide data for smoke, motion, power presence, open or closed doors, dry contact input monitoring, and leak detection. The Senturion EIDS is highly customizable and features a color LCD screen and a visual status indicator, which will provide you with temperature and humidity data as well as alerts. Plus, you can set up the system to send out local auditory alarms whenever there are potential environmental issues.

Sensatronics carefully designed the Senturion EIDS to be easy to use. The setup process involves a simple eight steps that take less than 17 minutes to complete. The company also added a cable management system that will reduce clutter and confusion and ensure that each monitoring probe is connected to the proper port. The Senturion EIDS is built to monitor almost any room in the data center, including server and equipment rooms or network closets.

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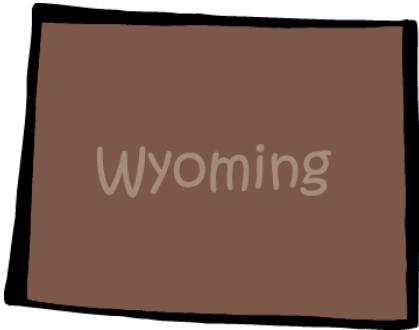


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News

Microsoft To Build Wyoming Data Center

Redmond, Wash.,-based Microsoft and Wyoming Governor Matt Mead announced that Microsoft will build a new \$112 million data center in Cheyenne, Wyo., to open in the spring of 2013. “Wyoming is a perfect fit for data centers,” said Mead in a press conference. “We have abundant, affordable energy. Our naturally cool climate decreases costs for data centers and we have redundant fiber optics.” The building project will initially employ 17 people at wages 150% above average for the county. When completed, the data center will serve Microsoft’s Mountain West region and will employ 40 workers.



Rising Semiconductor Revenues Indicate Tech Growth

According to research firm Gartner, the world’s top 25 semiconductor manufacturers grew 3.1% in 2011 compared to 2010 and accounted for a larger percentage of the industry’s total revenues at 69.2% in 2011 compared to 68.3% in 2010. Intel led the way with 16.5% market share in 2011 and 20.7% year-over-year growth; Qualcomm, sixth place in market share, managed 38.8% year-over-year growth. Gartner tempered its overall figures, however, with a reminder that about half of the industry’s growth came through mergers and acquisitions.

Accenture Completes Acquisition of Neo Metrics

Accenture, a Dublin-based technology consulting company serving clients in more than 120 countries, has completed its acquisition, announced earlier this year, of Madrid-based consulting firm Neo Metrics. Neo Metrics offered consulting services in areas including business intelligence and marketing automation. “Clients are looking for actionable customer insights that are critical to their organization’s ability to launch more profitable marketing campaigns, reduce customer turnover, and create more personalized interactions,” said Narendra Mulani, managing director for Accenture’s Analytcs and Marketing Services division, in a statement. Financial and other details of the acquisition were not disclosed.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 14 major companies in the technology market.

Company	Symbol	Year Ago	April 26 \$	May 10 \$	% change from previous issue
AMD	AMD	\$8.93	\$7.44	\$6.78	▼ 8.87%
Apple	AAPL	\$346.57	\$607.79	\$570.52	▼ 6.13%
CA Technologies	CA	\$25.06	\$26.68	\$26.41	▼ 1.01%
Cisco Systems	CSCO	\$16.93	\$19.60	\$16.81	▼ 14.23%
Dell	DELL	\$16.66	\$16.53	\$15.55	▼ 5.93%
Google	GOOG	\$535.05	\$615.47	\$613.66	▼ 0.29%
HP	HPQ	\$40.88	\$24.88	\$23.51	▼ 5.51%
IBM	IBM	\$172.24	\$205.62	\$200.60	▼ 2.44%
Intel	INTC	\$23.71	\$28.22	\$27.24	▼ 3.47%
LinkedIn	LNKD	n/a	\$105.22	\$111	▲ 5.49%
Microsoft	MSFT	\$25.32	\$32.11	\$30.74	▼ 4.27%
Oracle	ORCL	\$35.73	\$29.02	\$27.02	▼ 6.89%
Red Hat Software	RHT	\$47.44	\$59.79	\$56.04	▼ 6.27%
Symantec	SYMC	\$20.42	\$16.47	\$15.53	▼ 5.71%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

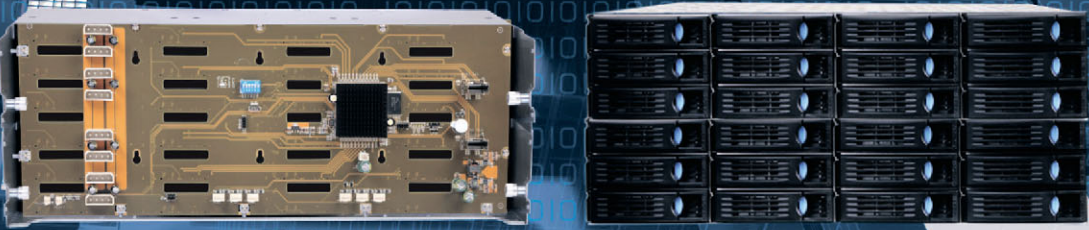


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RM417 / RM418



RM417 Rear view



RM418 Rear view

### Features: RM417

- Front and rear Hot-swap HDD/SSD access
- Modular 2.5", 3.5" HDD cages, and middle fans M/B tray
- 6Gb/s mini-SAS backplanes with Expander and SES2 support

### Features: RM418

- Rear access 2-bay 2.5" Hot-swap HDD/SSD cage
- Modular 2.5" and 3.5" HDD cages, and middle fans
- 6Gb/s mini-SAS backplanes with Expander and SES2 support

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### SAP Acquires Mobile Enterprise Company Syclo

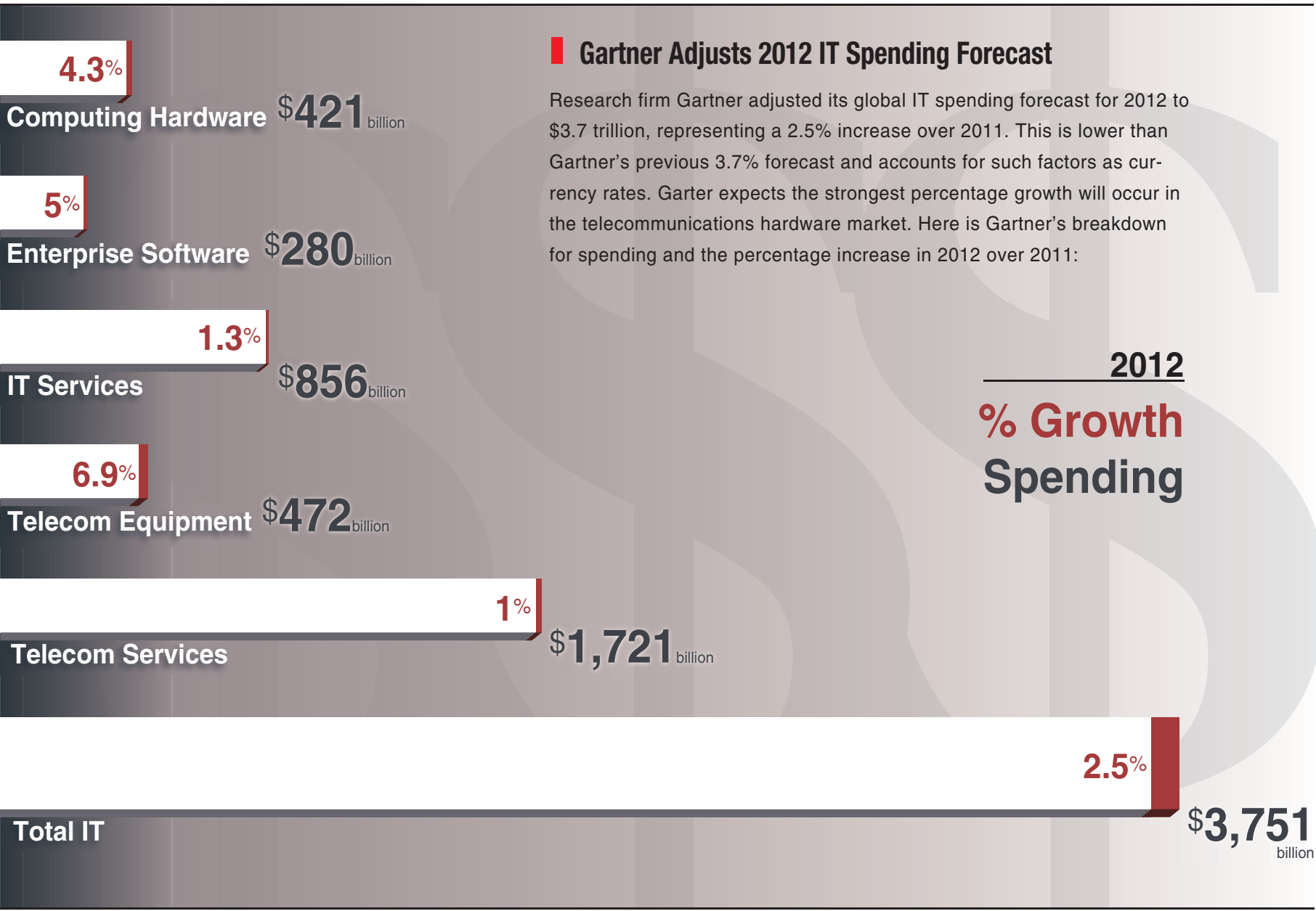
Syclo, the 15-year-old Hoffman Estates, Ill.,-based company that has a firmly established position in the mobile enterprise and mobile app market, will soon (Q2) become part of SAP. A leader in business process management, SAP is an international company headquartered in Newton Square, Pa., with about 12,500 workers in North America alone. SAP’s plan to acquire Syclo is consistent with its rising focus in offering products to an increasingly mobile market. Many specifics of the acquisition were not released, but SAP’s announcement states that “Syclo apps will be integrated with the SAP mobile platform and SAP Afaria for mobile device management and security.”

### Intuit Acquires Communications Firm Demandforce

Demandforce, a San Francisco-based company specializing in marketing communications and reputation services for SMBs, will soon become part of Intuit. The Mountain View, Calif.,-based accounting software company is paying roughly \$423.5 million for Demandforce in a deal that will close at the end of May. Intuit plans to make Demandforce a new division within its Small Business Group, with Demandforce president and founder Rick Berry leading the division. “We believe this transaction greatly benefits Intuit and Demandforce’s customers, partners, employees and shareholders,” said Berry in a statement.

### Progress Software To Cut Back For Increased Growth

Progress Software, developer of BPM (business process management) software and a host of related products and services, announced a strategic plan aimed at cutting costs and preparing for more focused growth. The plan includes divestment in 10 non-core product lines, a 10% to 15% reduction in its global workforce, and development of a platform for the aPaaS (application platform-as-a-service) market that will combine the company’s OpenEdge, Data Direct Connect, and Apama Analytics And Decisions products. Progress Software is headquartered in Bedford, Mass., and currently has 1,600 employees worldwide.



### Windows Phone Down But Not Out

In a new report about mobile applications, ABI Research forecasts that Windows Phone will take a mere 2% of the app market in 2012. The research firm expects strong growth from Windows Phone, however, and points out that many developers find it “a rather appealing platform” and that a 2% market share is actually double the platform’s 2011 share. Here are some other highlights from the report:

- Users will download 36 billion apps in 2012
- Android and iOS will account for 83% of 2012 app downloads
- Windows 8 tablets and the Windows Phone Apollo upgrade will give the Windows Phone platform a significant boost



## ■ Mobile Devices Becoming Important Factor In Consumer Spending

According to research from local media company Local Corp., North American consumers are increasingly using their tablet computers to research products and make purchases. The report indicates consumers still rely on laptops and desktop PCs for most product research, but that respondents are increasingly relying on smartphones and tablets, and that the trend is growing: 31% said they plan to research more via smartphone, and 41% plan to research more via tablet, over the next year, compared to 42% more for laptops and PCs. Additionally, 20% report buying more directly from their mobile device.



## ■ Oracle Wins Partial Victory In Case Against Google

Google has infringed on Oracle's Java copyrights, according to a jury, which spent about a week deliberating the issue. But the jury was unable to determine if the infringement is protected by fair use, prompting Google's attorney to inform Judge William Alsup, who is overseeing the trial, that Google would file for mistrial, contending that the same jury must decide both issues. The jury verdict marked the end of the copyright phase of trial. The trial will now move on to the patents phase and then a third phase of deciding whether Oracle should receive damages. Alsup also must determine whether U.S. copyright law allows Oracle's Java application programming interfaces to be copyrighted.

## ■ Supply Chain Management Heads For The Clouds

Two major players in the supply chain management industry, Oakland, Calif.,-based GT Nexus

and Ottawa-based Kinaxis, have formed a strategic partnership that will result in what the companies are calling "the industry's only cloud-based unified planning and execution platform for enterprise customers and business process outsourcing service providers." The main goal of the new platform will be to bridge the gap in the supply chain trail that exists between manufacturers and third parties, and to consequently eliminate the need for middleware to fill that gap. The companies did not provide a timeline for the development of this platform.

## ■ Tracking Inventory & More With RFID Showing Growth

In a new study, "RFID Market By Application And Vertical Sector," ABI Research asserts that the need for increased efficiency in various business tracking endeavors—asset tracking, fleet management, and personnel location awareness chief among them—has been dovetailing with the increased availability of RFID (Radio Frequency ID) solutions for short-range digital tracking. ABI cites government, retail, and transportation/logistics as the main growth areas and forecasts that the RFID market will generate \$70.5 billion over the next five years.



## ■ IBM To Purchase Sales Analytics Company

Armonk, N.Y.,-based IBM announced its intention to buy Toronto-based Varicent Software for an undisclosed sum. Varicent offers sales performance management, territory management, and related services for enterprise and mid-market customers. "For the thousands of sales organizations still relying on silos of data, spreadsheets and e-mail to manage sales, there is an enormous opportunity to apply analytics to this vital area of business and uncover new, untapped growth opportunities," said Len Rechan, general manager for business analytics at IBM, in a statement. IBM plans to combine Varicent with its existing business analytics and sales optimization specialists.

## ■ Security Needs, Small Business Demands Drive Software Market

Spending on security software grew 7.5% between 2010 and 2011, according to research firm Gartner, which attributed much

of the growth to advanced persistent threats and compliance. Spending on security software reached \$17.7 billion. The increase in spending is substantial, particularly during a time of IT budget restrictions and despite Intel writing down considerable revenue following its McAfee acquisition, Gartner reports.

## ■ Collabera & Verivo Announce Strategic Partnership

Collabera, a Morristown, N.J.,-based company offering consulting, engineering, infrastructure, application, and other IT services and solutions, recently announced it had entered a strategic partnership with Verivo, a Waltham, Mass.,-based company dedicated to enterprise mobility services. "Enterprise Mobility is redefining the way in which businesses operate today," said Mohan Sekhar, president and COO of Collabera, in a statement. "We feel this partnership further extends our expertise on industry leading mobility platforms for deploying best-in-class mobility solutions, empowering our customers towards accelerated mobility adoption." Verivo, in turn, will benefit from Collabera's scale and global reach. Collabera plans to offer new enterprise mobility solutions within a few months.

## ■ Consumers To Invest In Personal Cloud

The majority (90%) of connected consumer devices will be integrated with cloud services by the end of 2013, according to Gartner. And by 2014, the firm says the personal cloud will replace the PC in consumers' lives. Gartner expects the personal cloud to gain significant interest this year, stating that consumers are expected to spend about \$2.2 trillion on digital technologies in 2012 alone. Trends influencing this move to the personal cloud include the consumerization of IT, virtualization, the popularity of apps, the availability of cloud services, and the shift to mobility.





PHOTO LISTINGS

The *Processor* Photo Listings section includes brief overviews of data center products. All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

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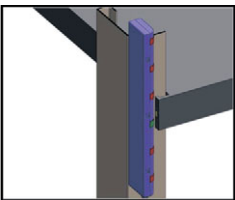
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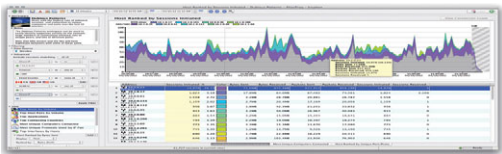


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The new Stand-Up Tile Lifter by Sealco lets you pull floor tiles while standing fully erect! The ergonomically designed shaft shifts weight from your back to your shoulders. Suction is engaged or released with the flick of a lever just beneath the hand grip. The ERW steel shaft stands 3.5' high (angled). With 5" diameter neoprene cups, the Stand-Up Tile Lifter is rated to 75 pounds of lift, and yet weighs only 5 pounds! It's available in red or black. The optional wall-mount keeps it always visible and available.

**Best for:** Any raised-floor data center environment

(800) 283-5567 ext.255 | [www.sealco.net](http://www.sealco.net)



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The QuadraVista HDMI is a flexible and powerful multi-viewer product with the capacity to control and monitor up to four HDMI video sources on a single display. Each of the quadrants can be adjusted and positioned to any size or location on the display. The QuadraVista HDMI can be accessed locally, sending ASCII commands using HyperTerminal, or from a third party controller over IP. The QuadraVista HDMI provides simultaneous support for HDMI and DVI video. The video features that the QuadraVista HDMI incorporates are:

- Automatic sensing of the input signal
- Picture-in-Picture
- Video loss detection
- Signal is automatically detected.

(281) 933-7673 | [www.rose.com](http://www.rose.com)



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Sensatronics recently introduced the Senturion Rack Mountable Environmental Monitor, which was designed with the IT manager in mind. The standard features of the Senturion includes:

- 3-Year Warranty
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(800) 633-1033 | [www.sensatronics.com](http://www.sensatronics.com)



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FEATURED PRODUCT

# Products Prepared For Real-World Use

Server Technology & PDUs Direct Know The Importance Of Product Testing

**MOST COMPANIES PERFORM** some form of testing on their products to ensure that they are in good working condition before being shipped to customers, but Server Technology, experts at producing the highest standard of quality PDUs, goes above and beyond basic testing with its 100% Product Performance Testing. The process includes putting each product through a series of tests designed to push it to its limits, which results in high-quality products with low failure rates.

The reason Server Technology decided to perform these tests on every product for 27 years is much simpler than you may think. “The worst thing for a customer is to open a box, plug a product in, and it doesn’t work,” says Jim Scherr, director of sales and operations at PDUs Direct (www.pdusdirect.com), the master distributor of Server Technology PDUs. “The overarching reason for doing the power testing is simple: to make sure that any product that leaves our building functions as per designed and meets all the criteria of the customer. We’re committed to always providing the quality and value that our customers expect.”

The first and foremost benefit of Server Technology’s 100% Product Performance Testing is that customers can have peace of mind knowing that the products powering their mission-critical devices work as

designed and have less of a chance to fail, according to Scherr. Server Technology’s major goal is to help keep their customers’ physical infrastructure up and running so they can be as productive as possible.

### Testing From Beginning To End

With 100% Product Performance Testing, it isn’t just a matter of testing a product after it’s completely built. In fact, these products are tested throughout the manufacturing



**Server Technology**  
Solutions for the Data Center Equipment Cabinet

**PDUs** || **direct**

process to make sure any possibly defects or other issues are caught early on to prevent a potential domino effect later down the line. And if a product fails at any step along the way, changes are made and the testing process at that level starts all over again. “It’s good for us to know early on if there’s a problem because we can fix it here at our manufacturing facility, which is so much better and quicker than trying to fix issues or problems in the field,” Scherr says.

The variety of tests performed on the products run the gamut from thermal, shock, and vibration testing to compliance with ATE (Automated Test Equipment) tests, as well. It all leads to the final tests, which are designed to test the product in real-world applications and make sure they are ready for the customer once and for all. All tests are performed in a state-of-the-art Power Lab.

“All products are tested at all stages, starting from when the product is in its infancy to when it has become finalized,” Scherr says. “Just before it goes out the door after the final modification, we test it once again. We don’t just test it by plugging it in and making sure the lights come on; we plug it in and we load every receptacle. We just want to make sure

that, functionally, the product fully works under the conditions it will see in the future.”

### A Partnership Between Manufacturer & Customer

PDUs Direct sells a wide variety of Server Technology products, including basic, switched, and metered Rack PDUs, and all of them go through the 100% Product Performance Testing process. It’s a combination of well-built, easy-to-use products and a

degree of testing that isn’t often seen in the IT industry. Current customers notice this because, according to Scherr, they “really appreciate the due diligence being done prior to them getting the products.”

And Server Technology, along with PDUs Direct, sees its relationship with customers as a mutual partnership, which is why 100% Product Performance Testing was put into practice in the first place. These companies strive to provide the best products available with the highest amount of testing and lowest failure rates so that their customers can focus on running their businesses instead of fixing infrastructure issues.

“The quality, reliability, and performance of our products are the most important benefits—to our customers and to us,” Scherr says. “It’s what we’ve built the company on and what we stand for every day.”

### SERVER TECHNOLOGY 100% PRODUCT PERFORMANCE TESTING

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# Specialty Racks & Accessories

## Hergo Saturn42—19-inch 42”D Enclosure Cabinet



Hergo’s top-grade enclosed server rack provides additional space to mount equipment up to 40 inches deep.

- Basic standard frame—42U/73.5 x 24 x 42 inches (HxWxD)
- Four gold-zinc plated mounting rails
- Front/rear locking doors—tempered glass, solid or fully perforated
- Top fan assembly option—one, two, or four fans
- Removable, lockable side panels
- Two locking/two non-locking casters supplied
- Quality powder coat finish—environmentally friendly

**Best For:** Users that need full-size, maximum-depth rack-mount accommodations.

**Price:** Speak to a Hergo product specialist today for pricing

**Contact:** (888) 222-7270 | [www.hergo.com](http://www.hergo.com)

## Hergo Venus Dual 19-inch Server Cabinet



This double-door, armoire-style enclosure from Hergo allows users to mount 42-inch shelving and 19-inch rackmount equipment in the same cabinet.

- Basic standard frame—42U/73.5 x 48 x 30 inches (HxWxD)
- Mount equipment up to 28 inches deep on fixed or slide-out shelving
- Patented CabiCom Conversion Kit for dividing cabinet into two 19-inch sections
- Removable, lockable side panels
- Power, cable management, and cooling options available
- Standard 2.75-inch or heavy-duty 4-inch casters
- Unit ships fully assembled

**Best For:** Customers that want to streamline network management by consolidating a variety of equipment in a single unit.

**Price:** Speak to a Hergo product specialist today for pricing

**Contact:** (888) 222-7270 | [www.hergo.com](http://www.hergo.com)

## Emcor® G-Series Product Line By Crenlo



With a 2,000-pound static load capacity and a wide range of available accessories and modular configuration options, the G-Series provides strength and versatility in an economical package. The G-Series is available in a wide range of sizes, including 19- and 24-inch cabinet widths and four cabinet depths ranging from 26.31 to 36.87 inches. With heights ranging from 30U to 45U, the G-Series provides a versatile solution for storing and protecting electronics in a wide array of applications.

- Available in multiple widths, depths and heights
- Available in dual-bay options
- Wide range of power, cooling and cabling accessories
- Can be configured, modified, or built custom for any application
- Optional tie-down kit to comply with seismic regulations

**Best For:** Broadcast and audio/video, test and measurement, military and defense, systems integration, security, and a variety of other applications.

**Contact:** (507) 287-3535 | [www.crenlo.com/enclosures](http://www.crenlo.com/enclosures)

## Rackmount Solutions Network Cable Bundle Server Rack



Need to secure a rack with a serious number of cables? Rackmount Solutions’ Network Cable Bundle Server Rack solves all problems. With a roomy interior up to 28 inches, you can set your rails to 19 or 23 inches and slide left, right, or center to allow for your cabling needs. Rails slide front to back and side to side for maximum flexibility. The unit is available as an open rack or with doors, side panels, and tops for security/aesthetics.

- Compatible with all leading servers, including blade servers
- Allows up to 10 inches of cabling space between side panel and rail
- Use as an open rack or add security with locking side panels and doors

**Best For:** Data centers and standalone applications needing to integrate quantities of cable drops.

**Price:** Starts at \$1,115

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Rackmount Solutions Air Conditioned Server Cabinet & Soundproof Server Rack



Rackmount Solutions’ Air Conditioned Server Cabinets have built-in A/C units with 4K, 7K, 10K, or 20K BTUs to protect equipment in warm or dirty environments. Units are available from 14 to 48U, with depths from 24 to 42 inches. Soundproof Server Racks from Rackmount Solutions reduce external sound up to 28.5dB while dispersing internal heat loads up to 7kW. Built-in casters make it easy to move these servers to another area when the need arises. The Soundproof Server Racks are available in active and passive versions and in 24U and 42U sizes.

- Air Conditioned Server Cabinet protects expensive equipment from overheating, works like a refrigerator with a condensate pan, and can be paired with a rack-mount or side-mount A/C for more space
- Soundproof Server Racks decrease noise up to 28.5dB(A), which is the equivalent of taking freeway noise levels down to library-quiet. Also disperses up to 7kW of heat. Employees can concentrate better, leading to increased productivity and less physical strain from excessive noise

**Best For:** Data centers and standalone applications with heat problems.

**Price:** Starts at \$5,633 (Air Conditioned Server Rack) and \$5,249 (Soundproof Server Rack)

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Uptime Racks ECC13 Air-Conditioned Computer Cabinet



Uptime Racks ECC13 efficiently cools IT equipment by bringing the cooling directly to the heat source. The ECC13 directs cold air to the front of the cabinet, ensuring that valuable servers remain cool. Uptime Racks provides primary, supplemental, or backup cooling to any environment.

- High cooling capacity: 13,000 BTU/hr at 115V
- Cabinet cooling powered by MovinCool
- 32U of available rack space
- Environmental monitoring
- Cold aisle/hot aisle configuration
- Plug-and-play installation

**Best For:** Small server rooms or hot spots within larger data centers.

**Contact:** (303) 908-8043 | [www.uptimeracks.com](http://www.uptimeracks.com)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

## Black Box ClimateCab™



ClimateCab cabinets from Black Box save energy and money by cooling only the cabinet rather than a whole room or IT center. They feature digitally controlled air-conditioning units that keep equipment cool even with room temperatures up to 130° F. Whether you need to house multiple servers, a PC workstation, or a small amount of rackmount equipment, ClimateCab is the solution to keep everything cool.

- Cool only the cabinet—not the entire room
- NEMA 12 rated for protection against dirt, dust, lint, debris, and splashing liquids
- Full-size cabinets available with 5000-, 8000-, or 12,000-BTU air conditioners, in 120V or 230V
- Choose from server, data, and wallmount models

**Best For:** Housing network equipment outside the protection of a climate-controlled data center in areas such as factory floors and industrial environments.

**Price:** Starts at \$2,695.95

**Contact:** (888) 433-5049 | [www.blackbox.com/go/ClimateCab](http://www.blackbox.com/go/ClimateCab)

## Black Box Elite™ Cold Aisle Containment System



Use the Elite Cold Aisle Containment System from Black Box to increase cooling efficiency in the data center. With this kit, you can shut off the aisle ends to contain cool air. You'll also create a more efficient cold aisle by reducing air recirculation. The system is exceptionally effective at reducing energy costs and increasing cooling capacity.

- Concentrates cool air where it's needed—at the front of equipment
- Reduces energy costs and increases cooling efficiency
- Convenient, professional-looking doors seal cold aisles
- Choose from 42U or 45U high units

**Best For:** Data centers of any size that need to increase their cooling capacity.

**Price:** \$1,379.00 for a 42U unit

**Contact:** (888) 433-5049 | [www.blackbox.com/go/ColdAisle](http://www.blackbox.com/go/ColdAisle)

## iStarUSA Group Claytek WSM-960 9U 600mm Depth Rackmount Server Cabinet



With a supported chassis depth of up to 23 inches, the rugged, shockmount-style WSM-960 server cabinet from iStar Group's Claytek division features a patented anti-vibration design with an industrial spring located under the cabinet post cage.

- Gilled side panel air vents
- Portable handle included
- Optional front and rear covers and optional casters
- Universal approach fits most rackmount chassis and equipment

**Best For:** High-risk and rugged IPC environments.

**Contact:** (888) 989-1189 | [www.istarusa.com](http://www.istarusa.com)

## RackSolutions Secure Server Unit



The Secure Server Unit (SSU) from RackSolutions helps protect sensitive server data by locking the unit in the rack and preventing access to its ports, hard drives, etc. If you have a need to secure one or more servers within a shared rack, the SSU is the perfect solution. The Secure Server Unit may also be used as an economic alternative to a colocation cabinet. It includes a front and rear housing that each mount to the rack and include doors that are only accessible with a key. A top cross bar is an additional deterrent for unauthorized server access. The SSU is compatible with square, round, and threaded hole racks, and it is designed to accommodate two 1U servers or one 2U server.

- Economic alternative to a colocation cabinet
- Works with any 4-post, 19-inch rack
- Has locking doors in front and rear of rack
- Houses two 1U servers or one 2U server
- Requires RackSolutions Universal Rack Rails

**Best For:** Securing single servers in a shared rack.

**Price:** Starts at \$219.99 (Part #: 124-2247)

**Contact:** (888) 903-7225 | [www.racksolutions.com](http://www.racksolutions.com)

## RackSolutions Colocation Cabinet



The Colocation Cabinet provides a secure, self-contained means for up to four tenants to share a single cabinet. This cabinet efficiently utilizes the floor space in data centers by minimizing the amount of unused space in cabinets. The manufacturing quality of this cabinet will instill confidence in the tenants that their equipment is protected from unauthorized access.

- 4 secure compartments for tenants
- 11U of usable space per compartment
- Secure compartment dividers
- 3 dial combination locks & key access
- Secure cable channels in each compartment
- Large 3" x 3" cable access ports on top and bottom of the cabinet
- Cabinet also includes side panels

**Best For:** Data centers that offer colocation solutions and have a need to maximize floor space.

**Price:** Starts at \$4,400

**Contact:** (888) 903-7225 | [www.racksolutions.com](http://www.racksolutions.com)

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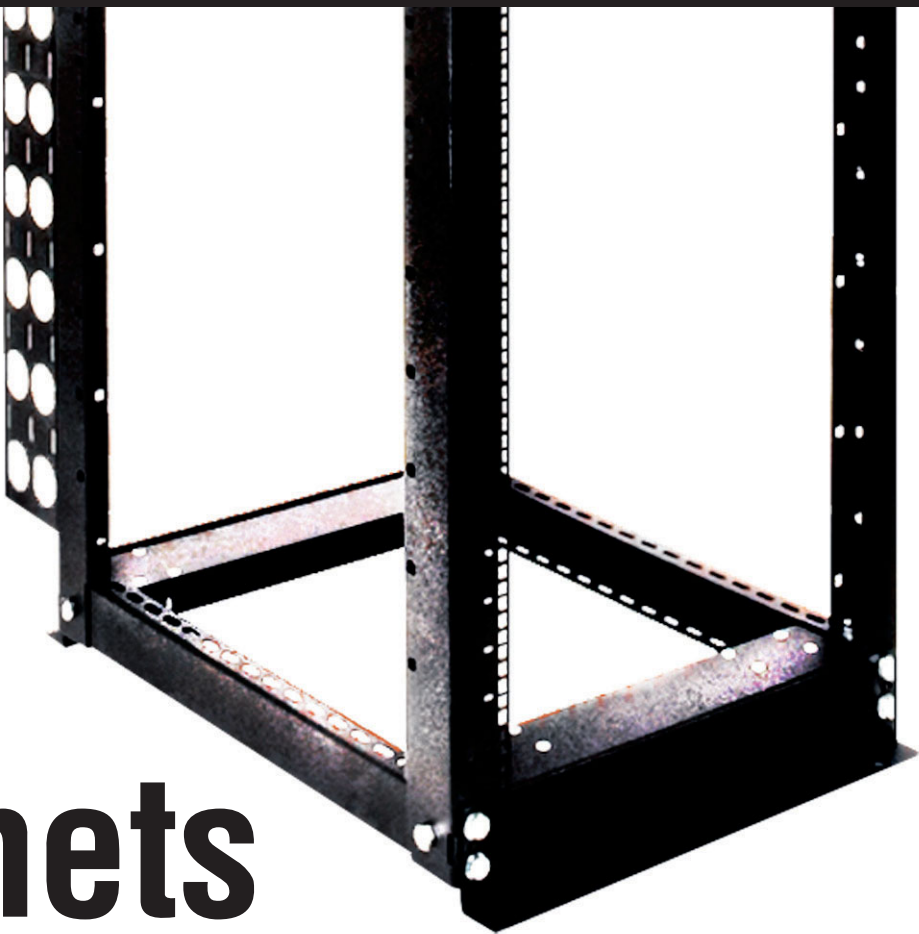
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PRODUCT SPOTLIGHT

BUYING TIPS:

# Data Center Racks & Cabinets



**RACKS AND CABINETS** are integral components of nearly every data center, but their importance often goes overlooked. Make the wrong choice in the type you stick your equipment on or in, and you could be asking for trouble in terms of damage caused by heat, dust, and moisture; exorbitant cooling costs; unwieldy cables; excessive noise; and security breaches. When purchasing racks and cabinets, keep the following considerations in mind.

**Know thy equipment.** You may know what equipment you’ll use your racks and cabinets for, but you also need to know the impact that equipment will have. For example, knowing how tall and wide the racks/cabinets must be to accommodate said equipment is imperative. Height-wise, says Gina Dickson, product manager at Black Box Network Services (877/877-2269; [www.blackbox.com](http://www.blackbox.com)), “42U is standard, but 45U is becoming more popular, and a smaller height like 38U might be necessary for legacy rooms where cable is going to be overhead.” Width-wise, the current cabinet standard is 24 inches wide, though 30-inch-wide cabinets are gaining popularity. Depth-wise, “if you are mounting equipment with different depths, you may even need to consider multiple sets of rails or split rails to accommodate the different depths,” Dickson says. Overall, Susan Wynne, account manager at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)), suggests buying cabinets that can accommodate equipment with the largest dimensions possible.

**Work the room.** Related to space considerations is an analysis of the room the racks/cabinets will go in, Wynne says. “Can the cabinet be easily transported to the destination?” she asks. “Will it roll through standard-height doors? Are doors and side panels removable for easy installation? Is the product solid and durable? Is there room to grow for additional product purchases?”


Dickson adds that it’s important to take into account raised floors and ceiling height, which will impact how tall racks/cabinets can be. “Bigger is always better when choosing a cabinet, allowing for more equipment, cables, etc.,” she says. “But if you have a limited footprint, the 48-inch-deep, 30-inch-wide cabinet may not be an option.”

**Stay cool.** One of the most important considerations is heat. Gauging how much heat equipment will generate will help determine what cooling methods will be

adequate for the racks/cabinets you purchase. For example, Dickson says, using a traditional hot aisle/cold aisle approach will impact the cabinet doors required because you’ll need mesh doors. “You need to ensure that the cool air is directed to the front of the cabinet and that the hot air can disperse from the rear,” Dickson says.

Additionally, the temptation to use open racks vs. cabinets to combat heat can result in merely filling the entire room with heat. “This may work fine for low levels of heat, but once enough equipment is present, it will become impossible to keep the equipment at an acceptable temperature,” Dickson says. One cooling approach gaining popularity is a modified hot aisle/cold aisle with containment, she says. “All the cold air is forced into the cold aisle, which is contained with

doors to keep the cool air in. The warm air is then pushed back into the room or up into the plenum using chimneys on the top of the cabinets.” This approach does require a cabinet offering containment doors and chimneys as accessories.

**Other factors.** When purchasing racks and cabinets, consider whether equipment needs to adhere to certain standards. For example, “Most manufacturers of data center racks and enclosures offer products that are marketed as offering ‘seismic protection’; however, there can be significant differences in the standards used to achieve those labels, and thus, major disparities in the level of protection that those products provide,” says Joel Young, engineer at Crenlo (507/287-3535; [www.crenlo.com/enclosures](http://www.crenlo.com/enclosures)). 

## BUYERS’ CHECKLIST

- ✓ Is cable management built in, or does the rack or cabinet leave adequate space to neatly route cables?
- ✓ Does the rack/cabinet provide PDU mounting options?
- ✓ Many cabinets now come standard with PDU mounting brackets.
- ✓ Does the equipment you’re mounting require tapped or M6 holes?
- ✓ Will you need to disassemble the rack/cabinet to get it in the room?
- ✓ Is the cabinet lockable to prevent potential security issues?

## KEY TERMS

- M6 holes.**  
Square holes common with rackmount equipment and server cabinets; they can be adjusted to a round hole with a cage nut.
- Rackmount units (RMU).**  
Cabinets and racks are measured in rackmount units, with each RMU, or U, equivalent to 1.75 inches.



CASE STUDY

# The Means To Expand

Aberdeen Helps Enable Growth At G & G Squared Enterprises



**ONE OF THE MISSION STATEMENTS** that Aberdeen displays prominently on its Web site ([www.aberdeeninc.com](http://www.aberdeeninc.com)) is “Perfecting the science of scalability. Because one size does not fit all.” Put another way, Aberdeen has the experience, personnel, and ability to assist any company with its individual server and storage needs regardless of its size.

It’s this capability that G & G Squared Enterprises ([www.gdickinson.com](http://www.gdickinson.com)) discovered when it set out to replace its existing bank of aging servers and open the company to the new market of virtual data centers, says G & G CEO George Dickinson II.



### Aberdeen AberNAS 167LX & Stirling 56T Mini 1U Rack

A customizable Linux-based, enterprise-class network-attached storage server built on an open storage platform and deployable in companies ranging from small startups to those with large IT environments. Featuring the Intel® Xeon® Processor

(800) 500-9526 | [www.aberdeeninc.com](http://www.aberdeeninc.com)

### Going Virtual

Originally operating as a private Web hosting provider for individuals and select companies, G & G took its offerings public in 2005. Today, Dickinson describes G & G as providing customers a “place where small businesses are encouraged to develop their Web potential through the use of Web hosting technology” and establish a Web experience to increase their Web awareness and audiences.

Dickinson says the company’s customer base ranges “from the little mom-and-pop shops to medium-sized business.”

In early 2011, the company found itself in need of upgrading its servers. Before ultimately selecting products from Aberdeen to fill its needs, G & G conducted research that involved comparing servers and storage servers from several other well-known competitors. “When comparing all systems configured the same, Aberdeen was the lowest price,” Dickinson says. After speaking with Aberdeen and downloading all the spec sheets, the company purchased its equipment from Aberdeen in April 2011.

G & G purchased an AberNAS 167LX NAS from Aberdeen’s AberNAS 160LX Series, which includes models based on Intel’s quad-core Nehalem Xeon E5506 platform.

The models also include 3GB of ECC DDR3 memory, four RAID-optimized (0, 1, 5, 6) and hot-swappable SATA 3Gbps drives, and a SAS expansion port that enables connecting to various Aberdeen XDAS storage models.

Suitable for small businesses on up to high-end IT environments, the 1U VMware-certified, Linux-based (64-bit, enterprise-class), and iSCSI/IP SAN ready AberNAS 160LX Series models range from 2TB to 12TB storage included.

G & G also purchased an Aberdeen Stirling 56T Mini 1U Rack, a SuperServer 6015V-MRB Mini-1U Rack Dual Xeon server based on Intel Nehalem processors and offering up to 16GB of ECC FBDIMM DDR2 memory. Dickinson says the process from unboxing to implementing the new equipment only took about an hour and a half. And the products have “exceeded the planned project,” he says, something that has enabled G & G to open itself up for new projects in coming years.

### A Warranty That Entices

Beyond Aberdeen’s experience, Dickinson says, he was also enticed by the standard five-year warranty Aberdeen offers, the off-the-shelf replacement parts provided, and its designation as a VMware-certified partner—all of which are offered at a “fraction of the

cost of competitors,” Dickinson says. “After doing years’ worth of researching,” he says, Aberdeen was “exactly what the company needed” to complete its virtualization project.

It was the five-year warranty, however, that “was the first thing that enticed me,” Dickinson says. Aberdeen provides the warranty with all its fully configured rackmount servers, including preconfigured Stirling servers and custom-designed servers, warranting the models from the date they’re shipped to be free of material defects and covering workmanship defects for the product’s lifetime.

In addition, Dickinson says, “The support team is great. I have not had any issues with the equipment.” And, he says, G & G is “enjoying the added space and lowered utility bills” it has experienced since its purchase. P

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Reliable integrated locking clips assure power cord retention. Unique to the industry and does away with nuisance wire clips.

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ISD's (Insulation Displacement) connectors are faulty and unreliable! All BayTech power solutions use reliable PCB power distribution.

#### Integrated Sensor Inputs

Eliminate the need for extra environmental monitoring devices. All BayTech power solutions offer two ports for external temperature and humidity probes.

## Build Custom Power Solutions with Standard Modular Product

BayTech's MRP Modular Rack Power system provides reliable power distribution with maximum flexibility for receptacle selection and power input.

BayTech offers three classes of the MRP system. Switched and monitored, simply monitored and individual receptacle monitoring.

User friendly interface for controlling power to receptacles, monitoring Current, Voltage, Watts, Temperature, Humidity, and KW Hour Meter.

### Standard Features

- High and Low Density Models
- 120/208/AC Single Phase
- 208/400VAC Three Phase
- 20,30,50,60 Amp Support
- On/Off Reboot Control
- HTTPS, SSH, SSL Access
- Radius, TACACS Authentication
- Tool less Mounting

### Unique Features

- Modular Design
- All Circuit Breakers Monitored
- KW Hour Meter
- Current, Voltage and Watt Meters
- Integrated Locking C13 Receptacle (Optional)
- Reliable PCB Power Distribution

Bay Technical Assoc. Inc. 5239 A Avenue Long Beach, MS 39560 Tel: 228-563-7334 Fax: 228-563-7335 [sales@baytech.net](mailto:sales@baytech.net)



# Environmental Monitoring

## AVTECH Room Alert 11ER



The Room Alert 11ER from AVTECH is an environmental monitoring device designed to help SMEs keep tabs on temperature, humidity, and other environmental conditions in computer rooms and data centers. The device keeps track of conditions via internal and external sensors and sends alerts to admins when predetermined thresholds are met or exceeded. The Room Alert 11ER's sensors can gather environmental information from multiple locations within an 1,800-foot radius and can be controlled and adjusted via an easy-to-use browser-based interface.

- Plug-and-play setup for immediate use, with or without a host PC
- Alerts can be sent by email, email-to-SMS, SMTP, Web page update, and more
- Real-time sensor status, data logging, and graphing
- Uses just 1U of rack space in a 19-inch form factor
- Includes one built-in digital temperature sensor, two digital sensor ports, and eight channels for switch sensors or dry contacts

**Best For:** Enterprises that need to protect mission-critical servers from changes in temperature and humidity.

**Price:** Starts at \$515

**Contact:** (888) 220-6700 | [www.AVTECH.com](http://www.AVTECH.com)

## AVTECH Room Alert 32E & 32W



AVTECH's Room Alert 32E and 32W are advanced hardware appliances designed for IT and facilities environment monitoring, alerting, automatic corrective action, and wireless sensor monitoring. They can monitor computer room temperature, humidity, power, room entry, and more in multiple locations, and they run using Power over Ethernet. Both models come with a full license of the AVTECH Device ManageR software, which automatically discovers devices, and a year-long subscription to AVTECH's Maintenance, Support & Update Service, with firmware and software updates, technical support, and full hardware replacement on the ID box free of charge.

- The 32W can accommodate about 100 sensors
- Password-protected built-in Web server
- Relay outputs let you remotely turn devices on or off, and 0-5V analog sensor inputs let you log information from other manufacturers' sensors
- Monitor units with built-in Web server, bundled Device ManageR, or any SNMP application

**Best For:** Enterprise-level monitoring in any location where running cables may be difficult or impossible.

**Price:** \$995 (32E) and \$1,195 (32W)

**Contact:** (888) 220-6700 | [www.AVTECH.com](http://www.AVTECH.com)

## Rackmount Solutions' Remote Physical Monitor



The Uptime Devices Remote Physical Monitor unit from Rackmount Solutions supports remote monitoring that lets users protect equipment and sensitive electronics. The RPM uses Remote Intelligent Multi Sensors technology, which lets it collect environmental and security data to send alerts via email, SMS, or SNMP when the monitored equipment exceeds the user-defined limits. Each unit has a battery-backed clock for accurate recording, and the device also supports up to 250 different RIMS, located up to 1,000 feet away.

- Real-time monitoring of temperature, humidity, airflow, and dry contacts
- Dry-contact sensors for use with 10-port dry contacts and HEAT RIMS
- Monitor and control third-party power strips
- Two-port power RIMS monitor, track, and manage IT equipment current load and voltage

**Best For:** Data centers and standalone applications that require temperature, humidity, and remote power management.

**Price:** Starts at \$799

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Upsite Technologies® Upsite Temperature Strip



The Upsite Temperature Strip, from the LOK Family of Solutions™, features an acrylic self-adhesive backing that lets users install it on any IT equipment or cabinet door where the potential for hot spots and other heat-related issues exists. It accurately provides a visual reading of intake air temperatures based on standards established by the Uptime Institute, ASHRAE, and equipment manufacturers for acceptable operating ranges.

- Colored range indicators display reliable temperatures within two minutes
- Calibrated in accordance with ASTM standards
- Measurements accurate to within +/- 10 degrees Celsius
- Monitor the intake air temperature of any piece of IT equipment for a low cost per strip
- Displays same-sized Fahrenheit and Celsius temperature scales
- Winner Best Product Award in the Infrastructure category

**Best For:** Monitoring temperatures and hot spots on any IT equipment and in data centers. Now available on HotLok® blanking panels.

**Contact:** (888) 982-7800 | [www.upsite.com](http://www.upsite.com)

## Sensaphone Web600



The Sensaphone Web600 provides Web-based monitoring at an affordable price. The Web600 lets you track critical temperatures and other conditions in computer rooms, data centers, and other areas, and it immediately alerts you via email, text, or SNMP traps when values are out of the normal range. The Web600 can read values from humidity, air quality, water leak detection, and other sensors.

- Completely standalone and easy to use
- Can connect up to six sensors to monitor a variety of equipment and conditions
- Built-in Web server provides quick and easy information about monitored conditions
- Optional battery backup

**Best For:** Organizations in need of a flexible standalone unit for monitoring temperature and other conditions.

**Contact:** (877) 373-2700 | [www.sensaphone.com](http://www.sensaphone.com)

## Server Technology Environmental Monitoring Control Unit-1-1B



Server Technology's EMCU (Environmental Monitoring Control Unit)-1-1B is an IP-based product that monitors temperature and humidity, features water and fluid sensors, supports four dry contact door sensors, and accommodates additional power-fed analog input sensors. A Web interface provides at-a-glance reports of temperature, humidity, water detection, and cabinet door status.

- Support for HTML and command-line interfaces
- Supports two temperature and two humidity measurements out of the box
- No additional software necessary
- Mounting tabs included for 0U mounting

**Best For:** Data centers, colocation sites, Web hosting facilities, telecom switching sites, POP sites, server closets, and any unmanned area that needs to be monitored.

**Contact:** (800) 835-1515 | [www.servertech.com](http://www.servertech.com)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

## Sensatronics' Senturion



This Senturion Environmental Intrusion Detection System quickly detects the following threats to your IT infrastructure:

Environmental Threats

- Temperature
- Relative Humidity
- Leaks

Security Threats

- Smoke
- Motion
- Light
- Door open/close

Power Threats

- AC Power Presence
- Dry Contact

**Best For:** Any company requiring a reliable, state of the art and easy to use environmental monitoring system where temperature is the primary threat.

**Price:** \$1,150

**Contact:** (800) 633-1033 | [www.sensatronics.com](http://www.sensatronics.com)

## ITWatchDogs' WatchDog 100



The WatchDog 100 is a self-contained unit with on-board temperature, humidity, and dew-point sensors. It has an input capacity of eight external sensors and an output of one NO/NC relay contact for triggering external devices like an auto-dialer or back-up fan. The WD 100 allows users to keep an eye on remote conditions from a secure web interface and receive SNMP, E-mail, text message, and voice call\* alert notifications when user-adjustable thresholds are exceeded. The device requires no software and is accessed securely over IP. Built-in PoE option allows users to eliminate the need for electrical wiring by combining power and data through a single connection.

- Sends SNMP, email, SMS, and voice call\* alerts
- View charts and graphs online via the Web GUI
- Compatible with up to four IP cameras (not included) for monitoring the area remotely
- Connect up to 8 additional sensors
- FREE firmware updates and technical support for life

**Best For:** Monitoring environmental conditions to protect mission-critical facilities.

**Price:** \$279

**Contact:** (512) 257-1462 | [www.itwatchdogs.com](http://www.itwatchdogs.com)

\*Auto-dialer required

## Server Nurse's Sensor Hub (SH-2)



The Uptime Devices' Sensor Hub (SH-2) from Server-Nurse.com is an easy-to-use, Web-based environmental, power, and security monitoring network device. Sensor Hub (SH-2) notifies personnel when conditions exceed user-defined limits. With Uptime Devices' wide range of environmental sensors, Sensor Hub can monitor temperature, humidity, liquid, dry contact, security, voltage, and other environmental states. Among the benefits are preemptive notifications and alarms, component life maximization, and optimized cooling efficiency that brings down energy costs.

- Two auto-sense intelligent sensor ports
- 0U rack-mountable
- Browser-based user interface—no software needed
- Send alerts through email or SNMP
- Real-time graphing
- Monitor HVAC, UPS, and legacy equipment
- U.S.-made and U.S.-based support

**Best For:** Data centers, power plants, manufacturing facilities, and other areas where a stable environment is vital to business operations.

**Price:** Starts at \$235

**Contact:** (512) 861-0837 | [www.servernurse.com](http://www.servernurse.com)

## RLE Technologies FDS-Wi Wireless Gateway



The FDS-Wi Wireless Gateway from RLE Technologies is a wireless acquisition device that helps monitor remote facilities. The FDS-Wi receives 418MHz and 900MHz signals from wireless devices and relays them to Facilities Monitoring Systems as SNMP, Modbus TCP/IP, Modbus RTU, and BACnet/IP signals. The Wireless Gateway's 418MHz antenna receives signals from transmitting sensors within 100 feet (30.5m) of open air space. Typical sensors transmitting 418MHz signals include temperature, humidity, and motion sensors; power transmitters; and dry contact, analog (0-20mA), 0-5VDC, and 0-10VDC signals. The 900MHz antenna receives signals through up to a quarter-mile (402m) of open air space from sensors and point repeaters, which can be used to increase the distance between the Gateway and the wireless sensors.

- |                               |                        |
|-------------------------------|------------------------|
| • Analog: 0-20mA, 0-5v, 0-10v | • Motion               |
| • Current: 15A CT, 40A CT     | • Temperature          |
| • Digital: Dry Contact        | • Temperature/humidity |
| • Leak detection              | • Thermistor           |
|                               | • Point repeater       |

**Best For:** Any company looking to use wireless connectivity for facility monitoring.

**Contact:** (800) 518-1519 | [www.rletech.com](http://www.rletech.com)

## Black Box AlertWerks™



The AlertWerks environmental monitoring system from Black Box enables remote monitoring of conditions in data centers, buildings, industrial sites, and more. The system is based on ServSensor hubs—just connect a hub to your network, attach AlertWerks Sensors, and set it to notify you of alarm conditions. The system features a wide range of sensors, including temperature, humidity, airflow, water, smoke, and AC voltage.

This extensive family of remote monitoring products features the ServSensor V4E (EME134A-R2), a premium sensor hub that supports up to 8 intelligent sensors—or up to 500 with the use of expansion modules—plus four surveillance cameras. The ServSensor V4E can send alerts by email, SNMP—even text message.

- Complete environmental monitoring over any IP network—even the Internet
- Choose from a wide range of sensors
- Centrally manageable with an easy-to-use, Web-based interface

**Best For:** Monitoring critical areas that can't have an attendant onsite full time.

**Price:** ServSensor hubs start at \$267.50; the ServSensor V4E is priced at \$1,492.65

**Contact:** (888) 433-5049 | [www.blackbox.com/go/AlertWerks](http://www.blackbox.com/go/AlertWerks)

## Uptime Devices SMS Sensor Alert™



Uptime Devices' SMS Sensor Alert™ is easy to install and use; there's no network or landline needed and zero software to install—the SMS Sensor Alert just needs to be powered up to start monitoring your site via its user interface. SMS Sensor Alert can monitor temperature, humidity, liquids, security, voltage, and many other conditions. The device hosts up to 12 sensors, including temperature, humidity, dry contact, security, water, UPS battery status, and main power monitoring. Internal battery keeps the SMS Sensor Alert on in case of power outage and an alert is sent out to notify you that the power is out.

- Cloud-based data storage means logging is continuous and can be accessed in a secure cloud-based data log
- Logs conditions and alarms at user-defined intervals
- Multiple alarm limits with alerts via SMS
- Daily status notification
- Internal buzzer can be activated to alert local personnel of an issue
- Simple installation—no computer needed
- U.S.-made and U.S.-based support

**Best For:** Remote sites, cold storage, freezers, refrigeration units, and power outage monitoring.

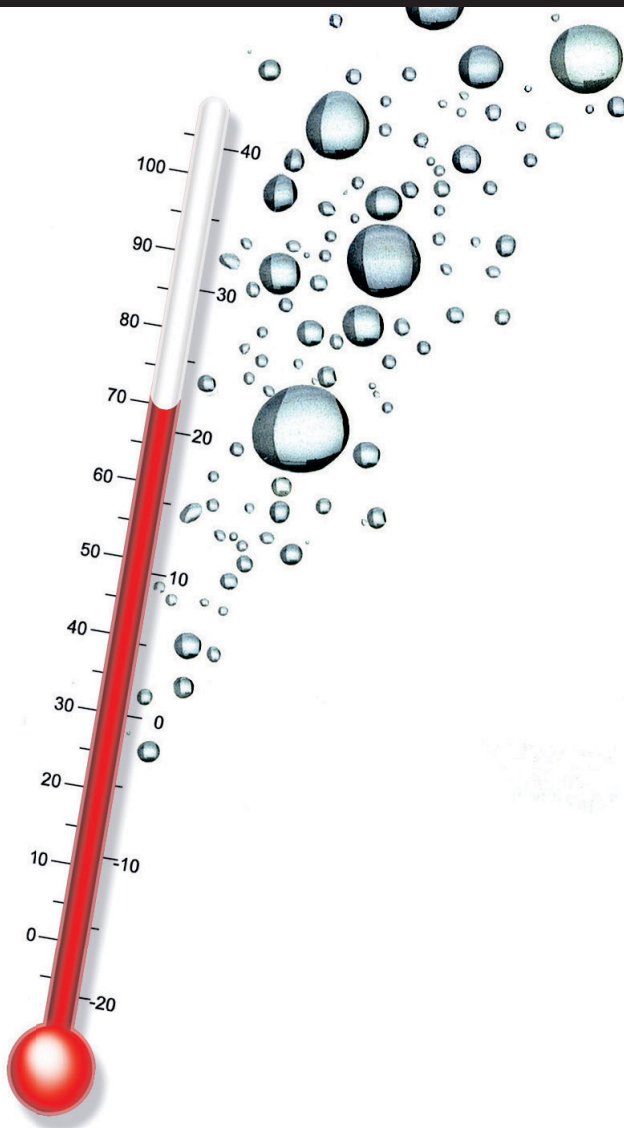
**Price:** Starts at \$485, plus monthly monitoring plan starting at \$15 per month

**Contact:** (512) 328-1800 | [www.uptimedevices.com](http://www.uptimedevices.com)



BUYING TIPS:

# Environmental Monitoring Equipment



**ENVIRONMENTAL MONITORING** offerings are not things an enterprise invests in on a whim. Every organization has unique infrastructure limitations, climate issues, and monitoring needs, so no one-size-fits-all solution exists. Decision makers must be well versed in the latest environmental monitoring tech available, as well as in areas such as sensor applications, notification capabilities, and management automation, to make appropriate choices.

**Connectivity options.** Until recently, any active monitoring product needed to be wired to be networked. But Wi-Fi and cellular technologies have taken up the slack, enabling customers to implement a monitoring system in remote and infrastructure-constrained locations. “Cabling and wiring inhibit where you can put sensors,” says Chris Gaskins, VP of product development at RF Code ([www.rfcode.com](http://www.rfcode.com)). “For data centers especially, you want to be able to micro-instrument your facility to capture all the environmental data you can.”

**Monitor a variety of conditions.** For critical systems that handle the most important data, it is vital to monitor a variety of conditions, even those unlikely to affect performance, to ensure against loss and downtime. Key environmental sensor types that can deliver proactive feedback include temperature, humidity, airflow, water leakage, and dry contacts. Power and voltage sensors are also important, even if the power sources have a reliable track record. Security-based sensors can also be incorporated into an environmental monitoring system.

“Heat, humidity, and airflow are just the beginning when it comes to monitoring,” says Jean-Paul Daemen, CEO of Uptime Devices ([www.uptimedevices.com](http://www.uptimedevices.com)). “The more elements you monitor, the more likely you are to be ready for the unforeseeable.”

**Notification options.** A state-of-the-art environmental monitoring system is nothing without notifications. After all, says Bob Douglass, vice president of sales and marketing at Sensaphone ([www.sensaphone.com](http://www.sensaphone.com)), “The primary motivation for adding an environmental monitoring system is to know when you have a problem as soon as possible.” Common notification options include email, LEDs, audible alarms, beacons, sirens, Web alerts, SNMP, automated phone calls, and SMS.

**Ensure ample coverage.** Consider the room size and amount of equipment to be monitored and plan the number and placement of sensors accordingly. “If your deployment is small, a few points of measurement may suffice, but if you have a large operation, you may require environmental measurements every few feet,” says Brandon Siri, senior marketing representative at Server Technology ([www.servertech.com](http://www.servertech.com)).

“It makes sense to have a monitoring solution that grows as easily and seamlessly as possible,” Daemen adds.

**Consider future support.** Choosing the right solution means little if you don’t have long-term support. “Look beyond the checklist and make sure that you’re getting future

enhancements, that you have access to support, and that the company stands behind its products, because all products eventually fail,” says Michael Sigourney, senior product specialist at AVTECH ([www.avtech.com](http://www.avtech.com)). “You’ll want to know that somebody’s there.”

**Keep costs under control.** Mo Sheikh, marketing manager of IT WatchDogs ([www.itwatchdogs.com](http://www.itwatchdogs.com)), advises enterprises to beware hidden costs and fees. “Invest in an environmental monitoring solution that doesn’t have a significant long-term cost of ownership,” Sheikh says. “A long-term data center management and monitoring solution is critical to preserving an IT investment, but it should not generate recurring expenses that degrade ROI.”

## BUYERS’ CHECKLIST

- ✓ Do you need to monitor remote or local systems?
- ✓ Do you have wired networking or power limitations?
- ✓ What kinds of notifications do you need?
- ✓ Do you have other monitoring needs beyond environmental?
- ✓ How many and what types of sensors do you need?

## KEY TERMS

- Dry contact.**  
Refers to an electrical contact that does not make or break a circuit.
- SEMS (Server Environmental Monitoring Systems).**  
Refers to products designed to record and report the environmental conditions of servers and clients.
- SNMP (Simple Network Management Protocol).**  
A network protocol that lets users monitor network availability and performance.



FEATURED PRODUCT

# A Holistic Approach To Web Application Firewall Protection

Network Box NBRS Ver5.0 WAF Uses A Combination Of Measures To Keep You Safe

**IT'S EASY TO UNDERSTAND** why so many companies worldwide, including 150-plus U.S. financial institutions, trust Network Box's award-winning UTM security solutions. The company constantly and proactively works to combat security threats via its patented real-time PUSH update technology, global network of Security Operation Centers, and other measures. The company's NBRS Ver5.0 platform transforms how UTM devices operate and how admins interact with them by introducing UTM-based "Holistic Security Management."

Whereas traditional UTM approaches combine multiple security applications into one device but present them in separate UIs, NBRS Ver5.0 combines "security modules" that work together and that admins can manage and view holistically. The result is a side-by-side view of network resources, users and machines, and individual attributes of those users and machines presented in one pane. Now, for example, admins can view the firewall blocks, Web access, and network usage for an individual user's mobile devices, desktop PC, and VPN access in one pane. The long overdue change in UTM, says Pierluigi

Stella, Network Box USA CTO, benefits IT managers who required a "comprehensive, full-served, universal view of their network gateways" for security, compliance, reporting, and business-continuity purposes.

First Things First

The first security module for NBRS Ver5.0 is a state-of-the-art Web Application Firewall that combines routing, protocol translation, encryption and compression offloading, DoS/DDoS protection, IPv4/IPv6 bridging, and Virtual Patching functionality.

Typically seated between attack sources and a Web server to be protected, NBRS Ver5.0 WAF intercepts and proxies requests aimed at the Web server, applying protection rules before delivering requests to the Web server. NBRS Ver5.0 WAF also intercepts replies stemming from the Web servers.

To conceptualize a WAF, Mark Webb-Johnson, Network Box Corp. CTO, says to think of a specific IPS that's integrated tightly with a firewall and whose sole purpose is protecting Web servers and applications running on them as accessed through the HTTP protocol. Although admins can

instruct a firewall to open/close port TCP/80 for Web access and an IPS can inspect traffic on port TCP/80 to seek out common vulnerabilities and exploits, NBRS Ver5.0 WAF goes further by "completely decoding the HTTP protocol and applying rules to requests and responses using that protocol."

As for datacenter-based applications running on Internet-facing Web servers, Webb-Johnson says although an IPS can do plenty to protect the Web server itself, an IPS (and similar technology) provides limited ability for protecting custom applications running on those servers. "This is where Web Application Firewalls come in," Stella says.

NBRS Ver5.0 WAF offers benefits related to DoS/DDoS protection, protocol translations, internal and external load balancing, computational and compression proxying, and encryption proxying. "Network Box's WAF system provides not only real-time push-updated Web application protection, but offers exactly the kind of effective yet affordable DDoS mitigation organizations are looking for," Stella says.

NBRS Ver5.0 delivers all these benefits without undermining the WAF's

overall effectiveness. Thanks to support for protection and policy enforcement at the inbound connection, request headers, request bodies, outbound connection, response headers, and response bodies phases, companies can use NBRS Ver5.0 WAF to provide vulnerability and outbound protection using either of the negative, positive, and DDoS security models.

Tomorrow & Beyond

NBRS Ver5.0 can run on all modern Network Box UTM hardware devices and is expected for availability in older equipment soon. Additionally, such options as hardware acceleration for various functions, including SSL and VPN encryption, are expected in the future. P



NETWORK BOX NBRS VER5.0  
WEB APPLICATION FIREWALL

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www.networkboxusa.com  
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Offers a "Holistic Security Management" approach with security modules that work together to provide a side-by-side view of network resources, users and machines, and individual attributes of those users and machines.

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PRODUCT SPOTLIGHT

# Fire Protection

## Fike Prolnert Gas Fire Suppression System



Fike's Prolnert system uses inert gas fire suppression technology to put out fires quickly and safely. The Prolnert agent is discharged at a steady flow rate, preventing destructive turbulence, and only the necessary amount of extinguishing agent is released. The system also uses environmentally friendly fire suppression agents.

- Replace your existing, and potentially harmful, fire suppression system with an environmentally friendly one
- Reduce installation costs by as much as 60% on hardware with smaller venting areas
- Can be placed in almost any non-critical area
- Directional selector valves decrease the chance of additional infrastructure damage

**Best For:** Companies that need to replace older fire suppression systems to support a green initiative and save money.

**Contact:** (800) 937-3453 | [www.fike.com](http://www.fike.com)

## Fike SigniFire IP Video Flame & Smoke Detection Camera



The SigniFire IP represents a family of turnkey flame, smoke, and intrusion detection camera solutions that visually detect the presence of fire or smoke at its source, independent of airflow in the area. This technology offers a critical advantage for early warning fire detection, identifying and reacting to fire, and protecting lives and property.

- Detects flame in seconds
- Supplies vital, situational, live video to remote locations
- Provides video surveillance capabilities
- Communicates with fire alarm systems
- Provides prerecorded video forensic evidence for future fire investigations

**Best For:** Enterprises looking to identify smoke in large spaces and have video evidence for insurance purposes.

**Contact:** (800) 937-3453 | [www.fike.com](http://www.fike.com)

## Fike ECARO-25 Clean Agent Suppression System



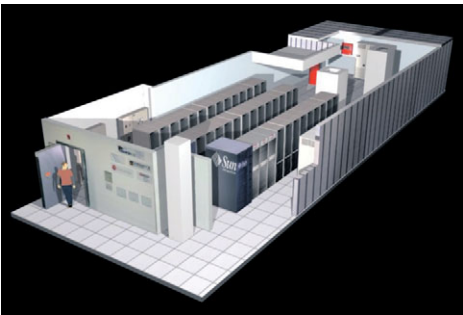
Fike's ECARO-25 system uses a gaseous clean agent to suppress fires without damaging high-end equipment, electronics, and irreplaceable items with water. It uses an agent called FE25 made by DuPont that absorbs heat energy at the molecular level so a fire can't sustain itself. The system uses Impulse Valve Technology, which efficiently and effectively puts out fire by combining the reliability and efficiency of a rupture disc with the flexibility of electric actuation.

- Unique, environmentally safe fire-suppressing agent
- Protects expensive infrastructure from fire damage as well as additional water damage
- Use your existing Halon pipe network and update it with the ECARO-25 system

**Best For:** Enterprises that need an efficient fire protection system that prevents excessive damage.

**Contact:** (800) 937-3453 | [www.fike.com](http://www.fike.com)

## Firelock Modular Server Vaulting



With Firelock's Modular Server Vaulting, you get a custom-designed vault that's built to suit your needs. A Firelock modular vault is an enclosure with integrated environmental monitors and fire suppression components, which makes it easier to protect the contents from a fire on the outside. The vaults protect your valuable components from fire while you monitor the servers and equipment from a remote location.

- Class 125 four-hour rated vault door
- Smoke- and heat-activated hydraulic door closer
- Environmental/alarm monitoring
- CCTV surveillance
- Novec 1230 fire suppression
- Watershield roof deck
- Fire-rated electrical cable trays
- Master power switch

**Best For:** Enterprises that want to ensure mission-critical operations by protecting key equipment in an isolated, secure, and fire-protected area.

**Contact:** (610) 756-4440 | [www.firelock.com](http://www.firelock.com)

## Peripheral Manufacturing Inc. Aero-K®



Aero-K® is a new aerosol technology fire suppression system, 10 times more effective than other fire extinguishing agents. Aero-K® is designed to protect enclosed spaces such as server and telecommunication rooms. Aero-K® uses smoke detection, electronic activation, or can be heat activated. An Aero-K® system requires no floor space or piping and can be expanded, reduced, or moved.

- Environmentally friendly, 100% green
- Non-oxygen-depleting
- Won't corrode steel, plastic, nickel, brass, zinc, copper, or other commonly used composites
- Leaves little residue after venting
- Has a 10-year shelf life
- On GSA Advantage: GS-07F-0462V
- IT applications, marine, wind turbine, vehicle engines, and many more

**Best For:** Information technology and telecommunication industries at risk of electrical fire hazards. Also used in B-class fuel storage areas.

**Contact:** (800) 468-6888, ask for Ron  
[www.fire-suppression-systems.com](http://www.fire-suppression-systems.com)

## Simplex FlexSim



The FlexSim solution from Simplex provides data center managers with a fire-rated vinyl solution option for hot aisle/cold aisle isolation. The FlexSim flexible curtain vinyl is provided in the standard fire-rated version and a second version, which includes built-in anti-static inhibitors. FlexSim is the first domestically produced clear, flexible curtain vinyl to meet the ASTM E-84 Class 1 rating for lower flame and smoke emissions in a fire.

- Two versions: FlexSim FR for standard applications and FlexSim FR AS for anti-static applications
- Meets or exceeds fire marshal requirements
- Made with non-phthalate plasticizers and non-halogen additives
- Complements existing Simplex curtain materials

**Best For:** Data center managers in need of a safe, fire-tested and approved material for hot aisle/cold aisle isolation.

**Contact:** (800) 854-7951 | [www.simplexstrippdoors.com](http://www.simplexstrippdoors.com)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

### Brady Fire Signs



Brady fire signs help you quickly identify fire exits, fire extinguishers, and other fire suppression equipment in your facility. Additionally, Brady fire signs can be used as a guide for proper emergency escapes. With exit and glow-in-the-dark fire signs, you can clearly indicate flammable materials and mark your entire facility for emergency safety. Brady fire signs are available in a variety of sizes, materials, and messages.

- Mark emergency paths and fire exits
- Label flammable materials or fire extinguishers and alarms
- Glow-in-the-dark signs are easy to see during power outages

**Best For:** Any business that needs clearly marked paths and fire exits in case of an emergency.

**Contact:** (800) 250-3082 | [www.bradyid.com](http://www.bradyid.com)

### Brady Photoluminescent Signs



Brady offers a full line of electricity-free photoluminescent signs to help meet your egress needs. Photoluminescent signs are ideal for green buildings and can help builders earn points toward a variety of LEED credits. Brady's photoluminescent signs are a perfect option for areas with possible electrical power failure. Available in a variety of materials and sizes, Brady photoluminescent signs are 100% reliable and help facilitate safe evacuation during fires, power outages, and emergency situations.

- Non-electrical signs that are visible without power
- Mark doors and paths for safe evacuation during emergencies
- Signs are durable and easy to install

**Best For:** Companies that need reliable lighted signs, especially in darker areas or places prone to power outage.

**Contact:** (800) 250-3082 | [www.bradyid.com](http://www.bradyid.com)

### Kidde Fire Systems



Kidde Fire Systems' ARIES NETLink system control units are designed for industrial, commercial, and high-tech facilities in need of fire detection and alarm notification management. The ARIES NETLink suppression control panel works with a variety of systems, including clean agents, CO<sub>2</sub>, wet and dry chemical systems, and water-based systems.

- Programming that enables complex releasing sequences
- Two notification and two release notification circuits
- Supports fiber-optic cable and copper wiring
- Offers advanced troubleshooting and diagnostic tools
- Efficient wire routing and easy access to power supply
- Works with water mist, water deluge, pre-action, and foam water-based systems in addition to CO<sub>2</sub> and chemical systems

**Best For:** All types of enterprises looking for a full-featured management control panel for a fire suppression system.

**Contact:** (508) 881-2000 | [www.kiddefiresystems.com](http://www.kiddefiresystems.com)

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PRODUCT SPOTLIGHT

BUYING TIPS:

# Fire Protection



**YOU PROBABLY ALREADY HAVE** a lot on your plate if you’re in charge of protecting the data center. Hackers, hardware and software failures, and changes to the physical infrastructure are all concerns. Fire protection is one issue that probably isn’t on top of your list, but if your data center isn’t capable of suppressing fires, all the rest of your hard work may be for naught. Here, we’ll examine what key features you should look for when investing in data center fire protection.

**Alert options.** You’ll need to invest in a smoke and fire detection system that can alert employees and IT staff to problems. Some models are capable of detecting the various stages of a fire, such as visible smoke vs. flaming fire vs. intense heat, to allow you to set off alarms or activate various stages of fire protection.

**Suppression options.** Fire protection is generally broken down into water and non-water options. The obvious downside to using a sprinkler system is that electronic devices and water can be a bad combination, especially in situations that are started by electrical fires. Thus, most data centers opt to go with a clean agent or aerosol agent suppression system, which is designed to leave no residue and is safe for both electronics and people, unlike some chemical-based fire protection. “Some clean agent suppressants are complex chemical compounds which act on the fire in various ways, such as reducing the heat, while others are pure inert gases which displace the oxygen to inhibit combustion,” says Steve Joseph, director of market development for Xtralis ([www.xtralis.com](http://www.xtralis.com)).

Regardless of which type of suppressant is selected, you’ll need to know at what stage during a fire the detection system should trigger the suppressant to release. According to Joseph, “Unnecessary or poorly timed suppression dumps must be avoided since the cost of such mistakes is enormous, because a volume of clean agent sufficient for even a modestly sized area can cost tens of thousands of dollars to replace.” In short, effective detection is key, as the suppression system is only as good as the detection system initiating the release.

**Emergency power off.** Nearly all data centers also install an EPO (emergency power off) system, which will shut off any electricity to the area where the detector senses a fire. Look for models with industrial-grade contactors, heavy-duty relays, and hard-piped wiring to prevent any accidental shut-offs. The EPO will need to be able to automatically work with your fire detection system.

## BUYERS’ CHECKLIST

- ✓ Find a smoke/fire detection system that meets the needs of your data center, in terms of stages of fire protection and number of physical detection locations.
- ✓ Research the various clean agent suppression options and make sure your sprinkler system is capable of working with the clean agent suppression system.
- ✓ Invest in an emergency power off system to shut off electricity when a fire is detected.

## KEY TERMS

- Aerosol agent.**  
A type of fire suppressant system that leaves little residue and won’t damage equipment. Although aerosol agents require a contained space, a sealed air-tight space is not required as the agent does not pressurize the protected area when discharged.
- Agent storage container.**  
The assembly or unit that stores the clean agent fire suppression liquid until it needs to be released when prompted by the suppression control panel.
- Class C.**  
Fire breakouts that involve electrical equipment where a non-conductive extinguishing agent must be used.
- Clean agent.**  
A type of fire suppression system that leaves no traces behind.
- Deluge.**  
A system where all the sprinklers connected to the water piping system are open. If the deluge valve opens due to a signal, the entire area will be sprayed with water.
- Early warning smoke detector.**  
A passive detector that uses ionization and photoelectric sensors.
- Heat detector.**  
A unit that sends a response when the convection of thermal energy changes the temperature of the device’s heat-sensitive element.
- Suppression control panel.**  
The unit that houses the interface you use to control the fire protection system.
- Very early warning smoke detector.**  
A smoke detector that samples air particles via aspiration to find non-visible smoke.



COMPANY TO WATCH

# Built On Experience

## Methode Electronics Provides Data Center Infrastructure Components Designed To Meet Your Specific Needs

**METHODE ELECTRONICS** has several positives working in its favor that few other companies can claim. Beyond possessing a history that traces back to World War II, the company manufactures products aimed at numerous industries, a trait that enables Methode to incorporate the technologies it applies across those industries into the products it aims at data centers. And by controlling its own manufacturing processes and providing its own installation services, Methode can customize and deliver those products to data center customers in a hurry.

### Innovation At Work

Founded in 1946 in Chicago, Ill., Methode is now a publicly traded company with operations in more than 10 countries and has a global network of 200-plus engineers developing products related to user interfaces, power, sensors and switches, and data center infrastructure for the company’s several divisions. Methode has been producing data center components since the early 1990s. Products released through its Data Solutions Group include server cabinets; patch panels; copper and fiber cabling and cabling solutions; infrastructure design and installation services; SFP, SFP+, and XFP copper modules and cages; automated asset-tracking

systems; and biometric access locking systems. In March, the Data Solutions Group launched a new line of CTI-branded server and networking cabinets, as well as NEMA and wall mount enclosures.

Tim Hazzard, president of the Data Solutions Group, says the experience and knowledge the company can tap into related to the physical layer infrastructure requirements of a data center enables Methode to develop unique solutions. “Our ability to take technology from the automotive, appliance, and power industries and weave these into relevant and useful data center products clearly separates us from others,” Hazzard says.

The ability to control its own manufacturing process means Methode can provide customer-specific modifications for every product it offers in two weeks or less. The company’s range of products supporting data center infrastructure enables IT and data center managers “to get everything they need from a single source and without having to go through distribution,” Hazzard says. Overall, the company can produce and deliver high-quality custom products at “very competitive prices” in less time than it typically takes competitors to deliver off-the-shelf products, Hazzard says.

### Built For Small To Midsized Enterprises

It’s the ability to quickly turn around products to customers that makes Methode an ideal fit for SMEs, Hazzard says. For example, “SMEs that traditionally cannot afford large inventory don’t have to purchase more than what they need,” he says. “Additionally, since we provide affordable services, SMEs don’t have to maintain staff to install and manage installation. Our staff can augment theirs on demand.” Methode’s DCIM solutions, for example, are affordably priced and “provide all of the functionality without the high cost of traditional DCIM solutions,” Hazzard says.

In addition, he says, “our quality is second to none, and we stand behind every product we make. While our warranties are similar to others in the market, our actions go above and beyond the words that are on the paper.” Methode designs its products to provide all the functionality at a more affordable price

than most common suppliers. “Everything we do is geared for the SME,” Hazzard says.

### The Experience To Serve

The personnel who work in the Data Solutions Group come from a diverse range of data center-related leadership positions, helping them to better serve SMEs. “Our team includes people who have done everything from managing and installing cabling infrastructure all the way to operating data centers that run complex ERP systems,” Hazzard says. “This experience makes us a trusted advisor, as well as a provider, to any SME.”

The company currently is working on two new solutions for the data center market, including one with DCIM capabilities inclusive of RFID-enabled asset tracking, environmental monitoring, cabinet access control, and security and power monitoring that’s now being tested in field trials. The other involves an active Lithium rack-mountable UPS solution that will go into field trial testing in coming months, Hazzard says. ■

**Company Name:**  
Methode Electronics

**Corporate HQ:** Chicago, Ill.

**NYSE Listing:** (MEI)

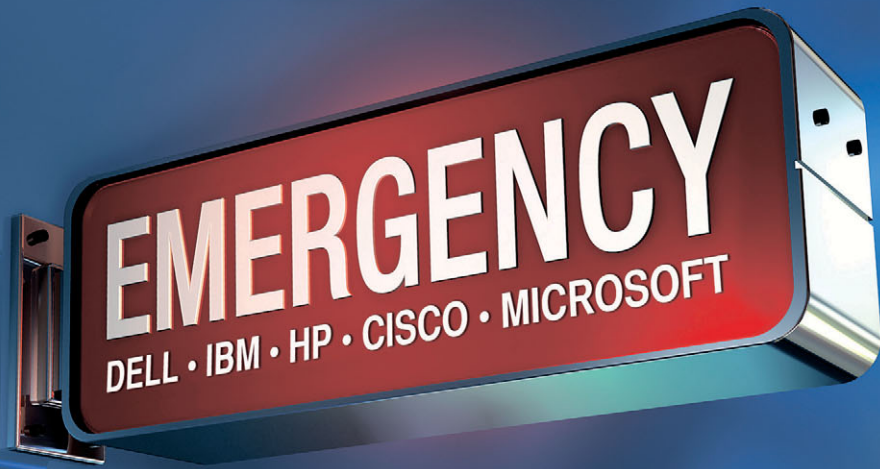
**Contact:** (888) 446-9175 | [www.methode.com/data](http://www.methode.com/data)

**Date Company Founded:** 1946

**Interesting Fact:** In addition to data center products, Methode Electronics’ products are used a wide array of products, including touchscreens in ovens, washing machines, and automotive consoles.



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PRODUCT SPOTLIGHT

# Data Center Furniture

## Rackmount Solutions Adjustable Height Corporate Training Tables



Rackmount Solutions knows one size does not fit all. The company offers tables that adjust from 28 to 35 inches, providing your attendees with the comfort and ergonomic efficiencies that come from the ability to adjust the height of your training table. These tables are available in five stock colors, have a lifetime warranty, and are made in the USA. Customizable with a variety of keyboard drawers, CPU holders, and locking cable bays, these units ship within three days of receipt of order.

- Choose from stock 36-, 48-, 60- or 72-inch-wide tables
- Accommodates up to two users
- Depths of 24 or 30 inches provides plenty of work surface
- Sturdy steel legs and 1.25-inch-thick table top surfaces
- Modesty panel matches top surface for beautiful aesthetic
- Locking cable bay as option to provide complete security for cables and equipment cords

**Best For:** Corporate training areas that require versatile, highly durable tables catering to multiple users and frequent ergonomic adjustments.

**Price:** Starts at \$268

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Rackmount Solutions Bravo Power Corporate Training Tables



Bravo Power Corporate Training Tables from Rackmount Solutions make it easy to connect your monitor, an Internet connection, and additional peripherals to Rackmount heavy-duty corporate training room tables by using a recessed, pop-up, or under-table power source. These tables are customizable with a variety of LCD mounts and keyboard trays and are ideal for environments where a power source on the table enhances usability and convenience.

- Choose from stock 36-, 48-, 60-, or 72-inch widths or create a custom configuration
- Common power modules used are two CAT 6 RJ-45 and two 15A/125V receptacles with circuit breaker, but modules can be interchanged to fit your needs
- Heavy-duty 14-gauge steel legs and a 1.25-inch-thick laminated table surface make these units almost indestructible
- Superior strength with support for up to 900 pounds

**Best For:** Corporate training areas that require versatile, highly durable tables with the convenience of power built in.

**Price:** Starts at \$439

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Rackmount Solutions Heavy Duty LAN Rack/Computer Station



The Heavy Duty LAN Rack/Computer Station from Rackmount Solutions is designed for heavier equipment loads, with each shelf supporting more than 850 pounds. All shelves are adjustable in 1-inch increments and may be placed anywhere on the frame. This workstation features a high-quality tube steel frame and unlimited variations when combining different LAN station widths, plus corner stations.

- Fully welded four-post frame with 2-square-inch, 14-gauge steel virtually eliminates vibration
- 14-gauge steel horizontal back panels for maximum strength and stability
- Available in 36-, 48-, 60-, and 72-inch widths; 84 inches high
- 1.25-inch-thick work surfaces support more than 850 pounds each
- LAN rack ships fully enclosed in a shipping crate to protect from damage

**Best For:** Anyone who needs shelving that can support heavy loads or flexible configurations.

**Price:** Starts at \$1,154

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Hergo Large Screen Multi-Media Cart



Hergo's large screen open frame cart features a Universal Tilt Plasma LCD Mount to accommodate units from 37" to 60".

- 72- x 36-inch (HxW) frame assembly
- 26-inch legs with heavy-duty casters
- 12-inch utility shelf to hold remote controls, DVDs, or product manuals
- 36-inch horizontal cable raceway
- Quality powder coat finish—environmentally friendly
- Options include power management, rackmount attachment brackets, and keyboard/mouse assembly

**Best For:** Customers needing a sturdy, all-in-one solution for presentation and AV equipment. Ideal settings include conference rooms, studios, classrooms, and libraries.

**Price:** Contact a Hergo specialist today for pricing

**Contact:** (888) 222-7270 | [www.hergo.com](http://www.hergo.com)

## Hergo Personal Workstation



The Hergo Personal Workstation is a fully modular right- or left-hand user solution. Designed for a single- or dual-monitor setup, this high-profile system provides maximum vertical mounting space for overhead storage and suspended or track-mounted flat-panel screen management.

- Double 11 GA metal-slotted frame unit measuring 84 x 60 inches (HxW)
- 72- x 30-inch (WxD) laminated desktop with left or right return (18-inch deep); also available in 60- x 30-inch configurations
- Monitor track shelf with LCD suspension system
- 18.5-inch-deep mounting shelves with upward or downward brackets
- 30-inch-wide metal-locking storage compartment with laminated, hinged flip-up door
- Power and cable management options

**Best For:** Multitaskers who require additional work surface and storage space.

**Price:** Contact a Hergo specialist today for pricing

**Contact:** (888) 222-7270 | [www.hergo.com](http://www.hergo.com)

## Hergo Commando2 Console



Hergo's double island top Command Center is a modular, low-profile multi-monitor workstation for the modern-day jack-of-all-trades operator.

- Four base frames—42 x 30 inches (H x W)
- Two high-pressure laminated island desktops—30 x 72 inches (W x L)
- Four track-mounted flat panel extension arms
- Side enclosure and modesty back panels
- Slide-out CPU shelf
- Under desk 19-inch relay rack

**Best For:** Command centers, call center and network operations where a multitasker can rise to the challenge and tackle daily hurdles in an attractive, efficient, and functional workspace.

**Price:** Contact a Hergo specialist today for pricing

**Contact:** (888) 222-7270 | [www.hergo.com](http://www.hergo.com)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

## DustShield™ Printer Enclosures



DustShield Bar Code Label Printer Enclosures secure continuous function and reliability. With DustShield protection, hardware can be efficiently placed where work is done in any industrial, manufacturing, or warehouse environment. DustShield Printer and Label Printer Enclosures are available for all brands and models of printing devices and can be customized for extreme environments and ergonomic requirements.

- Protects printer media integrity and performance
- Impact/heat/cold/corrosion resistant
- Filters 98% of airborne contaminants
- NEMA 12 and NEMA 4 rated
- Available in grey or black

**Best For:** Companies that require efficient, cost-saving, low-maintenance, dependable performance from industrial printing devices in dusty, dirty, grimy, extreme heat, or freezing cold environments.

**Price:** Starts at \$310

**Contact:** (800) 587-9557 | [www.dustshield.com](http://www.dustshield.com)

## DustShield™ Computer Enclosures



DustShield Computer, Monitor, and Display Enclosures protect electronic equipment in industrial, manufacturing, and warehouse environments. DustShield Enclosures are available for all models and configurations of devices and can be customized for extreme environments and ergonomic requirements. Standard and custom upgrades are available, including touchscreens, heating, and cooling.

- RF equipment compatibility
- Impact/heat/cold/corrosion resistant
- Filters 98% of airborne contaminants
- NEMA 12 and NEMA 4 rated
- Available in grey or black

**Best For:** Enterprises that require efficient, cost-saving, low-maintenance, dependable performance from computer workstations in dusty, dirty, grimy, extreme heat, or freezing cold environments.

**Price:** Starts at \$425

**Contact:** (800) 587-9557 | [www.dustshield.com](http://www.dustshield.com)

## Emcor® FP1 Console by Crenlo



The Emcor® FP1 series console offers a highly flexible and functional solution for monitoring applications, featuring a two-tier modular design built for today's flat panel (FP) monitor technology. The FP1's modularity and various accessory options allow customers to create almost any workstation configuration—from one bay to 20 and beyond—in straight or angled arrangements. With 19- and 24-inch rack mount capability below the work surface, the FP1 is ideal for setups requiring large amounts of hardware, cooling accessories, and extensive cabling.

- Flexible modular design
- 19-inch and 24-inch rackmount capabilities
- Large selection of countertop and accessory options
- Can be configured, modified, or built custom to fit any footprint or application

**Best For:** Mounting and protecting a variety of broadcast and security monitoring equipment, including CCTV and surveillance, matrix switching gear, digital recorders, controls, computers and servers, and flat-panel displays.

**Contact:** (507) 287-3535 | [www.crenlo.com/enclosures](http://www.crenlo.com/enclosures)

## Kendall Howard Performance Series Workstation sold by Peripheral Manufacturing



The Kendall Howard Performance Series LAN Station/Work Benches are top of the line in quality and versatility. Each bench frame is made from only the highest quality American-made tube steel.

- Patent pending open frame design
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**Best For:** Data centers in need of a versatile, quality workbench made in America.

**Contact:** (800) 468-6888, ask for Ron  
[www.periphman.com](http://www.periphman.com)

## Data Center Depot Hercules LAN Station



The Hercules LAN Station has an industrial-strength, super heavy-duty four-post frame and measures 84 x 72 x 36 inches. It's easy to assemble and has a 72- x 36-inch work surface, two upper shelves (72 x 24 inches), two steel legs with levelers, and three horizontal back panels.

- Shelves can hold up to 800 pounds and are adjustable in 1-inch increments
- Legs are made of 14-gauge tube steel
- Shelves are steel-reinforced and have high-density laminate
- 72-inch-high frame available for the same price as the 84-inch model
- Available in a variety of sizes
- Lifetime guarantee

**Best For:** Data centers in need of an easy-to-assemble, industrial-strength LAN station.

**Price:** Starts at \$1,020

**Contact:** (877) 429-7225 | [www.datacenterdepot.com](http://www.datacenterdepot.com)

## Data Center Depot Samson LAN Station



The Samson LAN Station features a super heavy-duty cantilever frame and measures 84 x 48 x 36 inches. The work surface measures 48 x 36 inches, and the two upper shelves measure 48 x 24 inches. The Samson comes with two horizontal back panels.

- Shelves can hold up to 450 pounds and are adjustable in 1-inch increments
- Legs are made of 14-gauge tube steel
- 72-inch-high frame available for the same price as the 84-inch model
- Lifetime guarantee
- Free consultation
- Available in a variety of sizes
- Optional accessories, including mobile server cart and pull-out keyboard shelves, are available

**Best For:** Data centers in need of a super heavy-duty LAN station that is easy to adjust or expand.

**Price:** Starts at \$966

**Contact:** (877) 429-7225 | [www.datacenterdepot.com](http://www.datacenterdepot.com)

PRODUCT SPOTLIGHT

BUYING TIPS:

# Data Center Furniture



**WHEN YOU THINK ABOUT IT**, furniture is the real backbone of your data center. But buying data center furniture isn’t as simple as pointing and clicking. Here’s what to look for in the furniture and how to choose the best possible vendor.

**Usage and design.** When looking to buy data center furniture, the best place to start is with your company and employee needs. For instance, if you are a cloud services provider, you will need plenty of racks and cases to hold the many servers and storage solutions necessary to fulfill customer requirements. “Some companies need conference room furniture for secure and private consultations and others, such as network centers, might utilize server cabinets or colocation cabinets and racks,” says Susan Wynne, senior sourcing specialist at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)) The furniture you choose depends on the services your company provides.

After deciding what types of furniture you need, you should look for key features, such as height-adjustment for chairs or cable management systems for racks. If

you can invest in modular furniture with swappable pieces, you’ll have room for future growth, according to Wynne. And it’s always important to choose furniture that will have a long lifespan. “You have to know that your current furniture will still be available in six or 12 months should you wish to duplicate or expand,” Wynne says.

**Maximize space.** You can save money on data center furniture without sacrificing quality by simply making sure you are using space efficiently. One way to do this is to go vertical rather than horizontal, possibly by investing in pieces of furniture that are wall-mountable. “Office and lab space is at a premium,” says Kristen Speranza-Diamond, vice president at Hergo (888/222-7270; [www.hergo.com](http://www.hergo.com)). “It’s beneficial to go vertical and make the best use of square footage.”

Speranza-Diamond says that most necessary pieces of furniture and equipment for data centers are becoming less expensive, including LCD displays, “so everyone is upgrading and making the transition to go compact.” Manufacturers are putting more

advanced technology into smaller packages, which will help you put more equipment into each piece of furniture.

**Vendor longevity and reputation.** A solid data center furniture vendor will be well-established and have a long history in the industry. If a vendor has a long track record of high-quality products and services, then you can view it as a partner and work with the company for years to come. “You want a vendor that you can invest in for the future,” says Eli Hertz, CEO and president of Hergo. “You don’t want to deal with a company that will only be around for a one-time purchase.”

Also, when it comes to choosing vendor, you should do your due diligence and research all of your available options. “Look for a reputable company with knowledgeable sales staff and one with short lead times,” Wynne says. She also recommends spending more money upfront on quality products from a long-standing vendor. “The initial investment may be more than you wanted to spend, [but] the furniture will stand the test of time.”

## KEY TERMS

- Adjustable height.**  
Refers to components users can raise or lower for a better individual fit. Some higher-end furniture can be adjusted electronically.
- Cable management.**  
Built-in grommets, channels, or other features to manage cables and wiring.
- Modular.**  
Furniture components that are interchangeable or can be easily modified.

## BUYERS’ CHECKLIST

- ✓ **Seek out quality.** Although looking for deals can help companies on a tight budget, sacrificing quality as a result can end up costing companies more in the long term, especially if buying from vendors that don’t offer lifetime warranties on furniture.
- ✓ **Know the delivery terms.** Before buying furniture, determine if the delivery includes bringing it inside the facility, requires a lift gate or loading dock, and includes assembly or puts the responsibility on you or a third-party installer.
- ✓ **Go modular when possible.** Buying components that are interchangeable lets you modify the setup to meet changing needs, including downsizing or expanding space. Increasingly, individual furniture units can be mixed and matched and layout configurations easily altered.
- ✓ **Build vertically.** Purchasing components that support building vertically promotes space efficiency.





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PRODUCT SPOTLIGHT

# UPSes

## Staco Energy Products FirstLine P 65-250kVA 480VAC UPS



Staco Energy Products has added 160, 200, and 250kVA 480VAC UPS models to its FirstLine P lineup. The company now offers three-phase UPSes for 65-250kVA applications. Up to 98% efficient, the devices use IGBT (insulated-gate bipolar transistor) and DSP (digital signal processor) control to produce true online double conversion with up to eight units in parallel for expandability and redundancy. FirstLine P boasts high efficiency and an impressive power factor, which translate into lower utility costs and a greener footprint. The units protect upstream power supply sources from harmonics and reactive power generated by the load.

- Dual Bus and Dynamic Dual Bus System configurations
- Hot-swappable
- Front, top, or bottom access for placing units against a wall
- Two-year onsite warranty
- Nationwide Service Program

**Best For:** Computer room and data center applications where affordability, efficiency, reliability, and flexibility are essential.

**Contact:** (866) 261-1191 | [www.stacoenergy.com](http://www.stacoenergy.com)

## Staco Energy Products FirstLine PL 10-100kVA 208VAC UPS



Staco Energy Products FirstLine PL UPS is a parallelable three-phase UPS meant for 10-100kVA applications. Up to four FirstLine PL units can be run in parallel, providing redundancy with no additional hardware. The units have efficiencies of up to 95% and feature a compact transformerless design that allows for internal batteries up to 30kVA. IGBT and digital signal processor control provides true online, double-conversion technology, while a user-friendly display boasts alarms and LED indicators for bypass, main line, battery powering the load, load on bypass, and normal output.

- Dynamic Dual Bus System configuration
- Space-efficient
- Matching extended battery and options cabinets
- Two-year onsite warranty
- Nationwide Service Program

**Best For:** Network closets, computer rooms, and small data center applications requiring a high level of available conditioned power.

**Contact:** (866) 261-1191 | [www.stacoenergy.com](http://www.stacoenergy.com)

## Staco Energy Products UniStar P Series 6-10kVA Rack & Tower UPS



Staco Energy Products UniStar P is an online, single-phase parallel redundant UPS available in 6kVA Rack/Universal and 6kVA, 8kVA, and 10kVA Tower models. The products are power- and runtime-scalable, up to 98% efficient, can be configured with up to four units in parallel, and are DSP-controlled. The units feature an LCD/LED mimic panel and easy-to-set user personalization, and they offer continuous power conditioning and smooth uninterrupted switching from utility to battery, handling wide fluctuations without going to battery. The units also have a very low rate of added harmonics, which protects system integrity.

- High input power factor and low current THD
- Flexible Rack/Universal and Tower models
- RS-232 port and optional communications slots
- Hot-swappable battery and matching external battery pack
- Industry-leading three-year warranty
- Nationwide Service Program

**Best For:** Network closets and small computer rooms requiring a high level of continuous available conditioned power.

**Contact:** (866) 261-1191 | [www.stacoenergy.com](http://www.stacoenergy.com)

## Rackmount Solutions Minuteman Endeavor UPS Battery Backup



Rackmount Solutions' Minuteman Endeavor series of UPS battery backup products delivers an online uninterruptible power supply in a form factor that can be rack-mounted, placed on the floor as a tower, or installed in a cabinet. With a power factor of 0.8 watts and available with capacities up to 3kVA, the Minuteman Endeavor series features hot-swappable batteries, rapid battery recharging, and extended runtime using external battery packs, and it's also RoHS-compliant. Outlet receptacle control for noncritical load shedding is included. The Endeavor series also includes Minuteman SentryPlus monitoring and control software and a front panel display with status indications.

- Simultaneous RS-232, USB, and SNMP communications
- Three-year warranty with up to \$200,000 equipment damage insurance
- Manual and automatic testing
- Harmonic distortion control
- Dedicated emergency power off port

**Best For:** Any situation where form factor flexibility is needed.

**Price:** Starts at \$546.75

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## Rackmount Solutions Eaton Evolution S UPS Battery Backup



The high-density, line-interactive Eaton Evolution S UPS (1750 VA/3000 VA) is an ideal solution for protecting servers, network devices, storage systems, point-of-sale terminals and other sensitive electronic equipment. The Evolution S can be easily integrated into a wide variety of environments and can provide hours of battery runtime. And, with one of the best price/performance ratios, this UPS offers a low total cost of ownership.

- Line-interactive technology with sine wave output to ride through blackouts and brownouts without stressing the connected devices and high output to protect equipment with PFC power supplies
- Versatile rack/tower form factor available in high density 2U or 3U size
- Extended runtime capabilities with multiple, hot-swappable battery modules (optional)
- One USB port, one Serial/Contacts port and one card slot
- Remote reboot of locked equipment, sequential start-up

**Best For:** Any situation where form factor flexibility is needed.

**Price:** Starts at \$599

**Contact:** (866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

## CyberPower Systems PFC Sinewave UPS Systems



The CyberPower CP1500PFCLCD PFC Sinewave UPS System with pure sine wave output and multifunction LCD safeguards computer systems, servers, and networking hardware that use conventional and Active PFC (Power Factor Correction) power supplies. Its AVR (automatic voltage regulation) topology delivers clean, consistent AC power, protecting connected equipment and preventing costly business interruptions. Its patented GreenPower UPS™ advanced circuitry reduces UPS energy costs by up to 75% compared to competitive models. The PFC Sinewave UPS Systems solve the critical compatibility issues of non-sine wave UPS products working with computing systems using Active PFC power supplies (ENERGY STAR 5.0).

- 1,500VA/900W pure sine wave UPS
- Line-interactive topology
- AVR & GreenPower UPS

**Best For:** Midrange to high-end computer systems, servers, and networking hardware that use conventional and Active PFC (Power Factor Correction) power supplies.

**Price:** \$259.95

**Contact:** (877) 297-6937 | [www.cyberpowersystems.com](http://www.cyberpowersystems.com)



Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Data Center  
Systems, Inc.  
Liebert APM



The Liebert APM is a row-based, modular, high efficiency and high availability mid-size uninterruptible power supply (UPS) system for mission-critical applications. This transformer-free, on-line UPS allows quick power capacity increases with the addition of modular, internal FlexPower™ core hardware assemblies. Each FlexPower™ Module has its own control board - no centralized “Control Module”, no powering down to add module, and no single point of failure inherent in competitive products.

- Industry's highest reported efficiency rating up to 94% with virtually flat efficiency curve from 50-100% load
- UPS industry standard, VRLA (Valve Regulated Lead Acid) batteries for increased reliability
- Integral Alber battery monitoring option for increased reliability
- Can be paralleled for capacity and/or redundancy

**Best For:** Small to medium-sized data centers, server rooms, production areas, labs and testing facilities, and telecommunication centers.

**Contact:** (952) 403-9900 | [www.datacsi.com](http://www.datacsi.com)

Data Power Technology  
Liebert GXT3



Reliable UPS performance is the key to increasing business systems' availability, reducing downtime risks, and enabling future growth. The Liebert GXT3 on-line UPS from Emerson Network Power protects IT equipment from virtually all power disturbances including: black-outs, brownouts, sags, surges and line noise, delivering continuous, high-quality AC power with no break when transferring to battery. This rack/tower convertible UPS is available 120V and 208V systems, in capacities from 500 VA to 10,000VA (230V systems also available).

- Compact system includes an internal battery, and requires less space than similar UPS systems in this capacity range
- Liebert GXT3 UPS is backed by the industry's best warranty, a two-year, no-hassle replacement warranty.

**Best For:** Reliable protection of PCs, network workstations and closets, servers, large network peripherals and VoIP applications.

**Contact:** (402) 592-7860  
[www.datapowertechnology.com](http://www.datapowertechnology.com)

Critical Power  
Exchange  
Powerware 9390-  
160 (Refurbished)



Protecting critical network and computing systems is the main focus of the UPS system. Not only can this unit provide short term backup for a power outage, but it can also protect against fluctuations such as surges, spikes and sags that you don't see.

- 100kVA Output
- Input 480V - Output 480V
- Two battery cabinets

**Best For:** Mission-critical data centers, medical facilities, and call centers.

**Price:** \$37,000 (est., depending on run time)

**Contact:** (877) 315-4176 | [www.criticalpower.com](http://www.criticalpower.com)

Critical Power Exchange Liebert  
NPower UPS (Refurbished)



Protecting critical network and computing systems is the main focus of the UPS system. Not only can this unit provide short term backup for a power outage, but it can also protect against fluctuations such as surges, spikes and sags that you don't see.

- 40kVA Output
- Input 208V - Output 208V
- Attached two-panel PDU and battery cabinet

**Best For:** Mission-critical data centers, medical facilities, and call centers.

**Price:** \$24,000 (est., depending on run time)

**Contact:** (877) 315-4176 | [www.criticalpower.com](http://www.criticalpower.com)

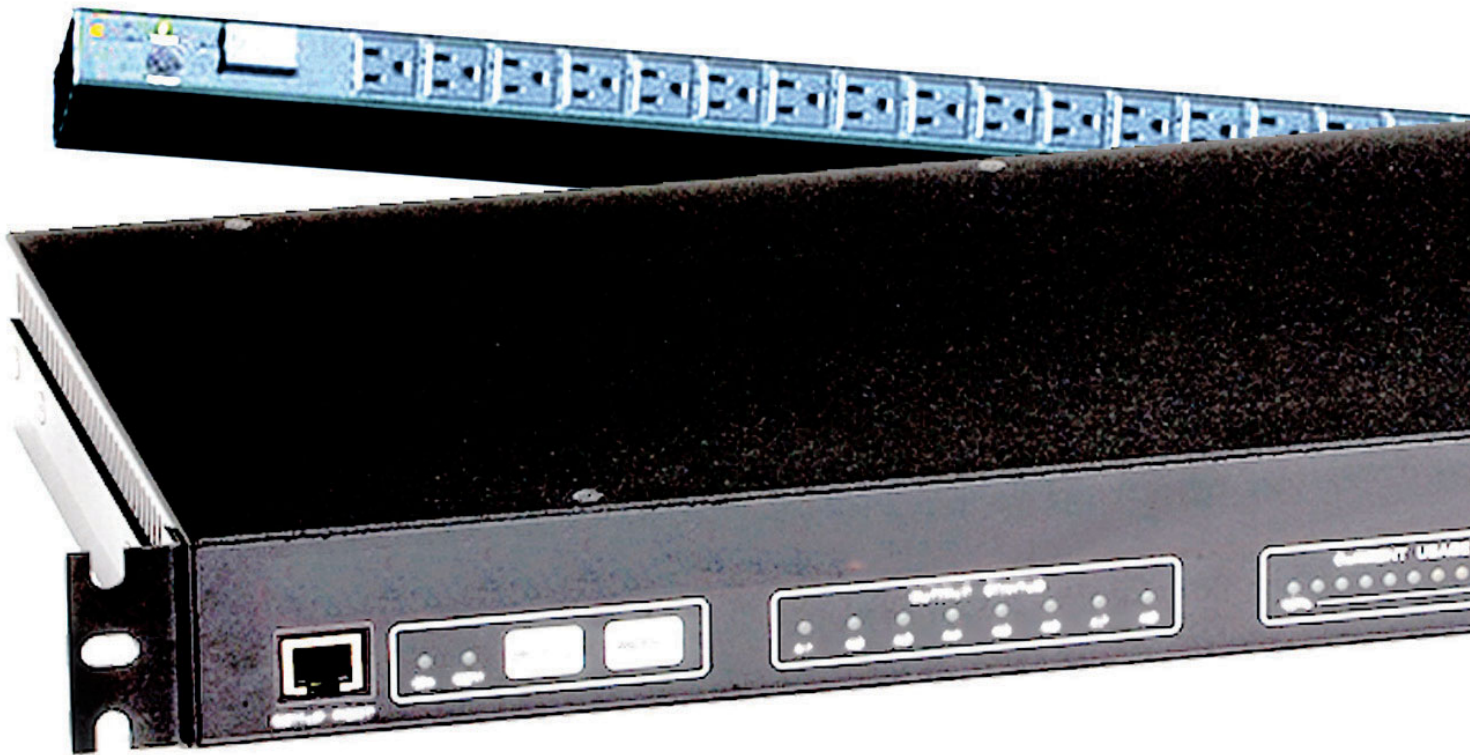
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PRODUCT SPOTLIGHT

BUYING TIPS:

UPSes



**THE IMPORTANCE OF UPSes** can’t be overstated. If power outages occur and the data center doesn’t have UPSes in place that can meet necessary power requirements, the result will be potentially business-crippling downtime. Consider the following advice when purchasing UPSes.

Cover The Basics

Narrowing down the exact elements you should seek in UPSes can be difficult, and the number of options available can complicate matters. “You have to start with some basics and be armed with some knowledge before making a selection,” says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)). “Selecting the appropriate size UPS and feature set aren’t the easiest tasks.” Prep work includes having data available detailing the total load of all equipment you’ll connect to the UPS, the minimum time UPS batteries must provide power, and the maximum runtime needed, he says. “You’ll also need to know the voltage of the electrical service that will power the UPS,” Femrite says.

Jim Hall, marketing manager at Staco Energy Products (866/261-1191; [www.stacoenergy.com](http://www.stacoenergy.com)), advises obtaining UPSes that provide an overall efficiency rating of 95% or greater, input power factor greater than 99%, and input distortion factor of 3% or less. Also consider models with multiple operation modes that are generator-friendly and that support hot system expansion, which allows parallel UPS additions without going to maintenance bypass, resulting in continuous protection of the loads. Overall, ensure the UPS has sufficient capacity to handle IT loads. Additionally, make low TCO a primary objective when selecting UPSes, Hall says. “This includes batteries and other auxiliary hardware. The considerations are initial cost to acquire, install, operate, and maintain the equipment.” UPS maintenance (in-house or outsourced) is also a significant portion of TCO cost, he says. Additionally, backup batteries that need replacement form the main factor affecting a UPS TCO figure, he says. Be sure to pay attention to

battery types, longevity, quantity, and automatic testing when specifying a UPS.

Determine What’s Important

The UPS features your enterprise needs can depend greatly on the protection level required for given applications. Femrite says that although it’s desirable to have a UPS with a high efficiency rating, external bypass

switches that enable power to bypass the UPS for maintenance purposes, monitoring capabilities (local and remote), warranties (system, batteries, etc.) and high-performance filtering, “they may not all be needed or cost-effective.”

Hall says three-phase online double conversion (converts AC to DC power and back to AC) UPSes provide the best overall value while providing conditioned power to IT loads. Such systems completely isolate the load from the primary AC line, preventing noise, sags, and swells from reaching the load. Also consider UPSes with high-performance filtering (protects upstream power sources from harmonics and reactive power), dual input for main and secondary emergency standby power (increases resilience of both single and parallel configurations), and IGBT (insulate-gate bipolar transistors) and DSP (digital signal processors) that provide for true online double conversion UPS system, Hall says.

Monitor Battery Power

Batteries, Halls says, are the leading cause of power interruptions, both as primary emergency power backup and as the source of crossover power for starting backup generators. Batteries degrade with age, he says, even when not experiencing lots of discharge cycles. If minimum runtime is critical, select a battery that provides a cushion so that after several years minimum, runtimes are still achievable, he says. Also ensure the UPS is properly sized to handle transient loads that might occur when utility sources aren’t available. “While a UPS can handle significant momentary overloads using the bypass, this capability is not available when running on battery power,” Hall says. Enterprises often buy UPSes sized too close to the average load power and don’t take transient loads into account, he says.

Also, Hall says, federal law requires that all used lead acid batteries be managed as universal waste. “For this reason alone, facilities with lead acid valve regulated or wet cell/flooded batteries should consider hiring approved firms to handle all battery installations, maintenance, and disposal,” Hall says. **P**

BUYERS’ CHECKLIST

- ✓ Determine your power and protection requirements
- ✓ Ensure the UPS can handle required loads
- ✓ Make certain the UPS provides sufficient runtime and capacity
- ✓ Consider outsourcing battery installation, maintenance, and disposal duties
- ✓ Determine warranty, insurance, and guarantee requirements

KEY TERMS

Line-interactive:

A UPS type with built-in line-sensing abilities to regulate high- and low-voltage levels; an inverter activates when power loss occurs and the system switches to battery power.

Online:

A UPS type providing the highest protection level; the inverter is online and operates constantly to eliminate incoming surges and low and high voltage issues while delivering clean power.

Standby:

A UPS type that runs power through surge suppression to connected equipment; after a power outage, the UPS switches to battery backup power, reverting to AC power when power returns.





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## Square Care



Square Care brings more than 22 years of experience, providing data center cleaning services by a highly trained, professional staff. Square Care technicians are specially trained for “mission critical” environments. By using CAD drawings of your facility, we are able to develop a precise and individualized cleaning and maintenance plan, including raised and non-raised floor areas. Carpeting outside the server area is often the biggest contributor to particulate contamination, so we clean that, as well. Cleaning services are designed around your enterprise’s needs, with minimal interruption and maximum elimination of dust and debris.

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- Using triple HEPA/ULPA filtration systems to eliminate reintroduction of particulates
- Providing status reports with pictures following every visit
- All technicians are continuously trained and IICRC certified

**Best For:** Data center and facility managers in need of qualified cleaning services for their mission-critical areas.

**Contact:** (800) 200-9680 | [www.squarecare.com](http://www.squarecare.com)

## Sealco



Sealco specializes in cleaning and maintaining computer rooms and their support equipment. Whether it’s post-construction cleaning or a preventive maintenance program, Sealco’s services will allow your data center to meet today’s environmental needs at an affordable price. Acknowledging the customer’s concern for safety and security, all Sealco technicians receive extensive background checks and training in data center operations.

- 28 years in the data center cleaning industry
- Permanent full-time employees are background-checked and drug-tested both before and during employment
- AirSeal bypass airflow programs designed to decrease energy consumption and increase infrastructure capacity
- Full line of computer room products
- Zinc whisker remediation
- Nationwide services

**Best For:** Any IT environment that needs cleaning services performed on any scale.

**Contact:** (800) 283-5567 | [sealco.net](http://sealco.net)

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Since 1997, Premier Solutions Co. has provided DCM (Data Center Maintenance) to the industry, gaining a 97% Excellent rating along the way and generating a 99% client retention rate over the past five years. Premier Solutions Co.’s comprehensive approach to DCM eliminates contaminants within your data center environment, protecting your valuable IT assets from the intrusion of particulates such as dust and dirt. Boasting an extensive crew training program, Premier Solutions Co. conforms to ASHRAE TC9 specifications, has adhered to a 100% uptime policy, and has cleaned more than 10 million square feet of data center flooring. We exceed your expectations!



- Cleans raised floors, subfloors, hardware, and servers, including high-density servers
- IDF/MDF rooms
- Ceiling tile cleaning
- Green Seal-approved products
- Onsite cooling/power assessment

**Best For:** Enterprise-level data center operations, colocation companies, and IT operations where security is maintained at the highest levels.

**Contact:** (714) 557-5800 | [www.premiersolutionsco.com](http://www.premiersolutionsco.com)

## Specialty Cleaning Services



Specialty Cleaning Services can effectively clean data centers, while also taking care of cleanroom, industrial lighting, acoustical ceiling tile, and post-construction cleaning. Offering five basic services, Specialty Cleaning Services uses HEPA-filtered vacuums, lint-free dust cloths, and sterile cleaning agents to complete commercial cleaning tasks such as exterior hardware cleaning, top-of-floor cleaning, underfloor plenum cleaning, above-ceiling cleaning, air sampling, and environmental reports.

- Heavy-duty cleaning for post-construction facilities
- Cleanroom sanitation for large facilities
- Water-based, nontoxic cleaning materials for acoustical ceiling tile
- Services are available for scheduled intervals throughout the year

**Best For:** Data centers that want detailed, hands-on professional cleaning services.

**Contact:** (303) 750-2532  
[www.specialtycleaningservices.net](http://www.specialtycleaningservices.net)

## ProSource Data Center Cleaning



ProSource offers mission-critical data center cleaning services that consist of multitier, time-sequenced preventive maintenance plans for cleaning the data center’s subfloor, raised floor, equipment surfaces, and ceiling areas. ProSource also offers subfloor encapsulation that includes an epoxy coating application to prevent subfloor plenum dust. Additionally, ProSource offers many products to help prevent contamination and static build-up in the data center, such as contamination control sticky mats, bypass airflow grommets and blanking panels, antistatic cleaning chemicals, and raised floor supplies.

- Standard service options include annual, semi-annual, quarterly, and monthly preventive maintenance service plans
- Customized plans are available to meet the specific needs of individual facilities
- Raised floor surface cleaning features Pro-Tek and Microfiber Flat Mopping System

**Best For:** Data centers that want to prevent the accumulation of dust and contamination that can cause unwanted downtime.

**Contact:** (888) 247-0986 | [www.team-prosource.com](http://www.team-prosource.com)

## Sterile Environment Technologies



SET3 (Sterile Environment Technologies) is a commercial cleaning, maintenance, and services company, offering nationwide service and specializing in meeting the needs of high-technology customers in sterile and non-sterile cleanrooms, data centers, computer rooms, and other critical environments. Since 1995, SET3 has cleaned over 70 million square feet of critical environment space as well as hundreds of thousands of server cabinets and other interior electronics.

- Specialized data center products
- Subfloor cleaning
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- Physical disaster recovery
- Ceiling cleaning
- Belt debris remediation
- Zinc needle remediation

**Best For:** Fortune 50 companies to government facilities as well as local county and municipalities nationwide in need of cleaning and maintenance services.

**Contact:** (888) 935-0620 | [www.set3.com](http://www.set3.com)



BUYING TIPS:

# Data Center Cleaning Services



A CLEAN DATA CENTER IS CRUCIAL to maintain the performance of your physical infrastructure and the productivity of your workforce, but you can’t rely solely on your janitorial staff to get the job done. “Every commercial building needs professional cleaning services,” says Jason Roth, director of technical services at Sterile Environment Technologies ([www.set3.com](http://www.set3.com)). “However, any controlled environment needs controlled environment specialists, not just a professional cleaner. The science used to clean in a data center is unique and cannot be replaced with common janitorial cleaning,” he says.

Cleaning companies should follow ISO 14644 standards, have experience cleaning ISO class 8 environments, and know how to address airborne contamination and particulate migration.

**Experience and reputation.** You shouldn’t let just any service provider be responsible for the cleanliness of your data center. You must make sure the service provider has years of training in cleaning data center environments, including floors, ceilings, cases, internal components, and much more.

Cleaning service providers must have “strong adherence to consistent, safe, and error-free processes; a proven reputation for attention to detail and demonstrated competency; and impeccable client references,” according to Scott Price, owner of Square Care ([www.squarecare.com](http://www.squarecare.com)).


**Employee background and thoroughness.** Once you’ve determined that a company has the experience and reputation to match your requirements, you should ask for employee background checks. The cleaning service should have “employees that are security clearance and background checked, drug tested at least twice a year, and have a tenure measured in several years, not weeks or months,” Price says. An established cleaning team with and a well-honed set of procedures is an absolute must.

The cleaning service should also be able to provide a detailed list of exactly what it cleans and how thorough it will be while cleaning. For instance, it should be adept and experienced with cleaning “subfloor plenum, top of access floors, VCT strip and non-conductive coating, ceiling plenum, exterior cabinets, and equipment interiors,” Roth says.

**Cleaning costs.** Price will certainly play a factor in your decision, and it varies from service to service depending on what it

offers as well as its reputation. “Depending on the thoroughness of the work and the size of the facility and the type of floor structure, including depth under floor, we have found the rates for your scheduled cleaning program will vary somewhere between \$.40 and \$1.75 per square foot,” says Price. But don’t let price fool you, because some companies will overcharge for the services they provide. Ask for a detailed service agreement that guarantees you will get what you pay for.

**Set a standard and stay on track.** Some parts of your data center will need

to be cleaned annually, while others will require quarterly or biannual cleanings. Create a cleaning schedule for the building itself as well as the equipment and stick to the plan. Between cleanings, institute policies that limit the access employees have to certain areas of the data center as well as what they are allowed to bring into the room itself. If you can get your employees to treat the data center as a sterile environment and decrease the amount of foreign contaminants, it will make the cleaning crew’s job easier and potentially lower costs. 

## BUYERS’ CHECKLIST

- ✓ Get a detailed scope of work.
- ✓ Require that employees be background-checked and drug-screened.
- ✓ Check the work in progress periodically.
- ✓ Limit what types of liquids and/or chemicals will be allowed in the data center.

## KEY TERMS

### Airborne contamination.

Gaseous and particulate contamination that can lead to equipment failure; often gauged by particulate sampling.

### ISO 14644-1.

An international standard for cleanrooms and controlled environments.

### Particulate migration.

The movement of contaminants from one sector or piece of equipment to another, often as a result of the contaminant changing form as it’s crushed and spread.

### Plenum.

An enclosed space (often beneath floors or in ceilings) used for HVAC, cabling, etc.

# Secure Your Data Center Perimeter

Learn To Control Access & Thwart Unauthorized Guests

**DATA SECURITY BEGINS WITH** controlling physical access to your organization’s critical environments, because one rogue individual standing in front of a server is no less dangerous than a hacker in another country. If you’re relying on a few closed doors and a scattering of watchful employees to repel unauthorized users, it may be time to put together a more comprehensive plan. We’ve rounded up some ways you can improve your perimeter security and reduce your facility’s attractiveness to interlopers.

✓ *Be Unapproachable*

When your building is your data center, it isn’t enough to be standoffish. Beyond blending into the scenery and minimizing signage, Damon Petraglia, director of forensic and information security services at Chartstone Consulting, says that your first line of defense should start far out from the facility, with a fence and controlled access to the property before you even get to the facility. “Depending on the sensitivity of systems and data contained within, [controlling access] may be done with a manned guard house which will check persons wishing to enter the property against an access authorization list,” he says. Reducing trees and shrubbery around the building further discourages unwanted loitering, and earthen berms can sometimes provide inexpensive alternatives to fences.

Remember that simply peering through windows could give people access to sensitive information such as where key infrastructure elements are housed. “A lot of times you see data centers that have no windows, but the last few I’ve looked at either have windows in them or spaces where you can see directly into the data center,” says Joseph Beal, chief information security officer at Creative Computing Solutions ([www.ccsin.com](http://www.ccsin.com)). “Stay away from windows if you do have them, or black them out if the windows are in a place where they can provide information.”

✓ *Opt For Multiple Authentications*

A single method of validating access—things such as swipe cards or passcodes—offers only one barrier to entry into restricted spaces. Matt Barnette, vice president of sales and marketing at AMAG Technology ([www.amag.com](http://www.amag.com)), says that forcing the use of multi-authentication access controls is much more secure. “Typically, the way we recommend these facilities to be locked down is to use a card access system that has the ability to have multiple factors of authentication, not only using a card to gain access to the perimeter or to a door, but also having a card plus PIN, and even in some higher security areas, having a card plus biometrics.”

One security layer that’s often overlooked is at the rack level. Beal says that’s a perfect opportunity to increase authentication without incurring much additional cost. “For the company that

has issues with cost, one inexpensive thing to do is to make sure at the very least to have racks that can be locked,” he says. Beal believes that organizations should have “at least three means of authorization, whether that’s through a key lock at the rack or some kind of biometrics or a swipe card to get into the facility or computer room.”


✓ *Add Video*

Barnette suggests that once a data center has established a security baseline, it should overlay that with a video surveillance system that can also provide some intelligence by being able to put in a perimeter. Improved camera technologies on both the hardware and software sides provide data centers with better options for tightening security. “Most of the new camera systems have the ability to define a virtual perimeter even without a sense line, and if something crosses that line in the video, it would actually generate an alarm,” Barnette says.

Surveillance and closed-circuit cameras are much less cost-prohibitive than in years past. “IP-based cameras and analog cameras have become so inexpensive and are invaluable,” Petraglia says. “There are even open-source tools that can be downloaded to create an alert for security staff when motion is detected on a particular camera. I highly recommend using trusted and known products when it comes to security; however, there are low-cost and free alternatives which are better than nothing.”

✓ *Beware Of Social Engineering*

Petraglia says that gaining access through social engineering continues to be a major problem for data centers and other critical environments. “I have performed social engineering tests throughout the country at federal and corporate secure data centers and have managed to talk my way into most and bypass all security measures,” he says. He points to tailgating as a primary example of how an unauthorized user can quickly gain access to otherwise secure areas and encourages data center managers to prohibit smoking on the property as a first step toward eliminating tailgaters. “‘Piggy backing’ or ‘tailgating’ a smoker into a facility is the No. 1 way I have gotten into secure facilities,” Petraglia says. “If you force smokers off the property, it dramatically limits the opportunity to follow that person into the facility.”

“The weakest link in any system is the actual users themselves who are gaining access to the facilities,” Barnette says. He believes that well-documented policies and procedures, coupled with thorough user training, are important pieces of an overall security plan. “Simple things like tailgating are so very prevalent,” he says. “You hold the door open because that’s our custom here in North America, and somebody walks in right behind you that shouldn’t even have access to the facility.” 

✓ *Ensure Security Systems Are User-Friendly*

Robust security programs are only as good as the operators monitoring them, so make the effort to ensure your systems are user-friendly. “Even in some of our highest security applications, they have a very detailed installation with cameras and access control and a lot of monitoring, and yet they don’t put a lot of thought into the user aspects,” says Matt Barnette, vice president of sales and marketing at AMAG Technology ([www.amag.com](http://www.amag.com)). “Who’s actually going to be monitoring the system? How easy is it for them to use the system that they’re going to be monitoring?” He says that usability “tends to be a big issue, because the biggest link is the operators and the actual card holders that have valid access.”

✓ *Keep Authorization Lists Up-To-Date*

Accurate and complete authorization lists are a must in any security program, no matter the methods you use or the complexity of your systems. Damon Petraglia, director of forensic and information security services at Chartstone Consulting, says that maintaining access authorization lists and ensuring the security staff and systems are constantly updated to reflect who is and who is not authorized to access the facility is one of the most often overlooked ways that data centers can mitigate their physical security risks. “Access authorization lists should be updated often (daily) to ensure only authorized individuals gain access,” Petraglia says. “If the systems and data do not warrant a manned gate, then the gate should be controlled with an access card, PIN, or biometric device.”

BONUS TIPS:

✓ *Limit entry points.*

“All doors should have no handles on the outside. They should function to be opened from the inside only,” says Damon Petraglia, director of forensic and information security services at Chartstone Consulting. “The only exception should be a monitored entrance which everyone must use.”

✓ *Lock down the loading dock.*

Joseph Beal, chief information security officer at Creative Computing Solutions ([www.ccsin.com](http://www.ccsin.com)), says that loading docks are often the easiest way to get into a data center, and just about anyone has “unfettered access to the major part of the data center via the loading docks. I think a major issue in data centers is to make sure to secure your loading docks and have access controls in place.”



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# Set Up A Colocation Arrangement

Research & Communication Are Key To An Agreement You Can Live With

**BY THE TIME** you’ve selected a colocation provider, you’ve no doubt expended a good deal of time and energy arriving at the decision. Unfortunately, you’re still left with the small matter of ironing out an agreement—a process containing myriad details that, if not addressed with care, could seriously impair the enterprise for years to come. Reviewing contracts and SLAs is imperative, but so is knowing the right questions to ask, demands to insist on, team members to include, and more. Before signing on the dotted line, consider the following.

### Determine Your Value

When taking an in-depth look into your contractual relationship with a colocation provider, it’s important to forecast what you’re paying for beyond a monthly charge for the space. Darin Stahl, Info-Tech Research lead analyst, suggests building a six-year budget that includes monthly recurring costs but also one-time fees and transition and exit costs. “The figures don’t have to be precise, but throw them in there and give yourself and your management team a full view of what you’re signing up for,” Stahl says.

Look particularly carefully at pricing for services provided, such as if you need the provider to, say, remotely restart a server. The contract may include this service cost, Stahl says, but some brand-name vendors “exclude those costs unless you buy a super duper services package on top.” Thus, pricing may look good hosting-wise, but the vendor may charge upward of “\$55 per 15 minutes of incident and a one-time fee of \$300. That’s when you really have to think about what the modeling looks like,” he says. Documenting real long-term costs, he says, lets you enter negotiations knowing your real value to the vendor. So, instead of 2,800 bucks a month, he says, “I’m a \$1.9 million value, and I think that’s a much better place to be from a negotiating place with the vendor.”

### Plan Your Exit

Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)), says before signing a contract, you should review the agreement and SLA for uptime and performance guarantees and “recognize and document any benefits due if the SLA is not met.” Also note access and support policies and procedures; points of contact for support, sales requests, and escalation management; lead times for provisioning orders; whether you must obtain additional insurance; whether access to telecom carriers is needed; and any compliance requirements to meet. “In legal negotiations, communicate the intent or the underlying concern with any points that you are proposing to change,” Femrite

says. “If the provider company understands your reason for requests with the contract, they will know how they can accommodate you in the negotiation.”

Also heed issues concerning new services added and transition details. Stahl says if a vendor delivers a new rack, for example, the agreement may cite a given number of

### Key Points

- Enterprises should determine all costs associated with a colocation provider, beyond monthly recurring fees.
- Companies should carefully review SLAs for uptime and performance guarantees.
- Enterprises should know how the provider will handle adding services in the future, as well as exiting the provider’s space.

### Action Plan

- Define your requirements and expectations of the provider.
- Determine the products, services, and equipment the vendor provides.
- Determine the lead time the provider needs to provision services.
- Present your requirements to the provider for its responses.
- Set a timeline for completion.
- Review the agreement and determine who will sign it.
- Conduct legal negotiations to communicate your intent and concerns with points you’d like changed.
- Set a plan of action and schedule a move-in date.

### Get Started

Before negotiating with a colocation vendor, have on hand a complete copy of the agreement, SLAs, acceptable use and access policies, billing and invoicing procedure details, insurance requirements, and the vendor’s contact points. Include in the negotiations and contract signing the company’s CIO/IT director, legal team, CFO, network and systems administrators, infrastructure manager, appropriate IT and facilities staff, and those executives who will eventually help transition the shift from deployment and maintenance issue to planning future innovation and development needs.


days you have to contact the provider before it deems that you’ve accepted the service. “So now you’re on the hook for it payment-wise, and if there’s any deficiencies with the service, you have to go through the standard protocols and issues with respect to how you mitigate that.” Better, he says, is defining your acceptance terms when writing a statement of work and testing it “because it’s the one time you have to withhold payment from the vendor and make them resolve that deficiency.”

You should also know the provider’s terms for transitioning in and out of the environment, Stahl says, as “exiting early is a real possibility.” Here, a contract might state the provider can give 30 days’ notice to exit, which likely isn’t enough time to remove all your equipment. “What happens on the 31st day?,” he says. Check if you’ll get the vendor’s most skilled team to assist with the exit and what the related costs are, he says.

### Inspect The SLA

Scott Reiland, communications manager at Phoenix NAP ([www.phoenixnap.com](http://www.phoenixnap.com)), says, “There’s a difference between a 100% SLA and a 100% SLA that pays something in the instance of any sort of issue.” Determine if the SLA has real teeth, he says. Femrite advises comparing the SLA to the services you plan to use, as some SLAs have varying levels of coverage based on services. “Be sure to note whether there’s a redundant service offering that you must opt in to use in order to be fully covered by the SLA. Examples include A/B power or redundant network connections,” he says.

A personal visit to a facility is also important, says Nathan Keller, director of business development at Contegix ([www.contegix.com](http://www.contegix.com)). “When determining a place to colocate your services and equipment, it is always important to do your due diligence by visiting and thoroughly inspecting the facilities of the space in which you will be colocating,” he says.

Overall, Stahl cautions against getting caught up in flash. Providers will “show you some pretty stuff,” he says, but the devil is in the details in the market of running a data center. Check if cabling under a raised floor is clearly labeled and there’s attention to detail, note who handles security and how (swipe cards, in-cage surveillance camera, etc.), and perform similar quality checks, he says. 

### Top Tips

- ✓ **Know thy neighbor.** Smaller colocation providers that compete on price and don’t own their facility typically can’t offer an iron-clad SLA around the actual facility, says Info-Tech lead analyst Darin Stahl. Using such providers can result in acquiring “interesting neighbors,” such as one operating a spam ring. One Info-Tech customer, Stahl says, was involved in such a scenario in which the entire IP block the provider was managing ended up on a blacklist and the customer “couldn’t get stuff in and out from an email perspective.” Ultimately, the customer had to switch providers, which cost tens of thousands of dollars. “A lot of this business is very much like buying real estate,” Stahl says. “It’s all about the location. You’ve got the great house. It has a marble kitchen and all that stuff, and the schools are pretty good, but meanwhile, your neighbor is a Hell’s Angel.”
- ✓ **Plan ahead.** “Because both parties’ interests need to be protected under the agreement, legal review of contracts can take time and have the potential to delay your installation or cause you to miss your deadlines,” says Brett Femrite, director of business development at Rackmount Solutions (866/ 207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)). Thus, he says, request a copy of the agreement early in the sales process so your legal team can review and begin negotiating in advance.







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# Cut The Storage Fat

## Consolidate Your Storage To Reap The Associated Benefits

**THE BENEFITS OF UNDERTAKING** a storage consolidation project are fairly well known. Beyond reducing security risks and costs, improving performance, and easing management responsibilities, consolidating storage directly addresses the ever-increasing issue of data growing at staggering rates in many enterprises. Richard Csaplar, senior research analyst at Aberdeen Group, says research from Aberdeen Group points to companies “seeing their data growing at an average yearly rate of 32%. This means corporate data is doubling in size every 2.5 years.”

What does that mean for IT? As Csaplar says, “Data growth and dealing with it are always among the highest pressures being felt by IT managers.” Implementing storage consolidation to ease this stress and realize the associated benefits, however, isn’t simply a matter of deciding, “OK, let’s do it.” There are numerous risks and complexities to account for first. To help do so, consider the following.

### Before You Begin

Understanding what your objectives are in implementing a storage consolidation project is paramount. Greg Schulz, senior advisory consultant for StorageIO Group, says that because there are different aspects to storage consolidation, it’s vital to “understand what the application requirements are from a performance, availability, capacity, and cost standpoint. In other words, what is the driver to do a storage consolidation project?” Moosa Matariyeh, enterprise storage solution architect at CDW (www.cdw.com), says, “IT professionals sometimes overlook what the business goals are and how the applications fit into those short- and long-term needs when beginning a consolidation initiative.”

According to Csaplar, “If you really want to deal with the issue, you need to have a strategy.” One form of this is having a corporate ILM (information lifecycle management) process in place to define which data is important, how it should be stored and for how long, and when it can be destroyed. “These are decisions for the company and should not be made by IT,” Csaplar says. “Without an ILM process, IT won’t know what data is important and what is marginal. You cannot treat all data as the same or you will cost the organization greatly in purchasing too much expensive storage or keeping the data active for too long.”

Norm Hutton, director of sales and acquisitions at WeBuyUsedTape.net (800/821-1782; www.webuyusedtape.net), advises enterprises to note the older storage assets the enterprise will no longer need, determine whether there’s resale value that could help fund the current project,

and determine whether there are compliance issues to address first.

### Develop A Baseline

By developing a baseline of your current storage environment, it will be possible to

make decisions concerning which storage systems you can consolidate from a performance perspective (using SSD drives) or capacity standpoint (various RAID levels, compression, deduplication, archiving, etc.). Schulz says the baseline should

### Action Plan

- Collect and analyze the data to consolidate.
- Prioritize the levels at which you’ll protect various data.
- Assess your consolidation options.
- Plan a pilot program.
- Decide if you need to hire a consultant.
- Implement the pilot program.
- Acquire any new tools needed.
- Reconfigure and migrate data.
- Assess your changes and make needed tweaks.

### Top Tips

- ✓ **Do a balancing act.** Balancing storage-related performance, availability, and capacity is something IT must keep in perspective, says Greg Schulz, senior advisory consultant for StorageIO Group. “This means in the quest to consolidate storage to reduce cost by driving up utilization, that a performance bottleneck isn’t introduced into the environment,” he says. “Likewise, this means avoiding reducing availability or introducing points of failure in the quest to reduce cost by consolidation.”
- ✓ **Create a cycle.** Richard Csaplar, senior research analyst at Aberdeen Group, advises IT to consider cycling data through a series of tiers. “The latest and most important data is stored on the most reliable and fastest media, and as it ages, it’s moved to slower and less expensive storage devices,” he says. “Finally, when most of it will no longer be needed, it can be archived onto tape or into the cloud.”
- ✓ **Factor in costs.** Beyond costs related to storage devices and media, another consolidation expense is the time required to analyze storage activity, consider consolidation options, and implement the consolidation plan. Expenses can also stem from moving or migrating data, obtaining services, and acquiring management software that resides above the storage devices.
- ✓ **Analyze ROI.** Norm Hutton, director of sales and acquisitions at WeBuyUsedTape.net (800/821-1782; www.webuyusedtape.net), says the consolidation process as a whole should involve an ROI analysis, determining what’s needed to gain approval and how IT can obtain a quote for the value of older storage assets, which the enterprise can apply to the ROI of the new project.

### Get Started

Moosa Matariyeh, enterprise storage solution architect at CDW (www.cdw.com), says issues usually surface from a lack of planning, especially if a project is rushed. “This often occurs because IT professionals feel the burden of the daily needs of their storage environment and might not have the luxury of storage consolidation being their only focus,” Matariyeh says. Before you start the consolidation project, it’s best to develop a plan for how to proceed.

### Key Points

- Pinpointing what your exact storage consolidation goals are is imperative.
- Analyzing the enterprise’s various types of data will help prioritize its importance.
- Post-consolidation monitoring is vital to make certain all changes have a positive impact.

include the resources currently existing, such as storage systems; the percentage of space being used; and current performance or activity indicators, such as how much bandwidth and how many high I/Os are tied to specific applications.

After accessing the environment and considering different options, Schulz says, you can then implement changes related to any data-movement migration reconfiguration. “This could also involve implementing new technologies, hardware, [or] software, or reconfiguring to support the consolidation environment,” he says. Afterward, Schulz says, it’s important to measure, monitor, and track how things have changed in pursuit of consolidating storage. For example, have performance bottlenecks been introduced? By assessing the environment early on from a capacity standpoint and looking at latency response times, I/Os, and bandwidth, he says, decisions can be made to prevent bottlenecks from occurring. Additionally, assessing the changes will indicate if fine-tuning is needed or different or additional hardware and software is required.

### Tools Of The Trade

Among the tools and investments enterprises will potentially need to support a storage consolidation effort are those that allow for applying metrics and obtaining measurements in order to make informed decisions to optimize the storage environment. “This means having insight into historical trends and patterns around space capacity usage or utilization, along with performance and activity data, such as response time, I/Os, and bandwidth, along with availability data,” Schulz says.

Deduplication and compression software is an option for reducing the physical size of data sitting on storage media, Csaplar says, adding that “automated data-tiering software can manage the flow of data from the most expensive to cheaper storage options, therefore reducing the cost of data storage.” Furthermore, virtualization can bring the enterprise’s storage devices under one management umbrella for easier overall control. Additional options, Schulz says, could include I/O consolidation tools, fast SSD storage along with various RAID levels, and real-time thin provisioning with different RAID levels and tiering.

“The biggest obstacles SMEs can face overall are often related to internal organization issues,” Matariyeh says. “For instance, departments can be compartmentalized, and it can be difficult to re-integrate those compartments when you consolidate storage. It can be challenging to bring together the budgets of those compartments as well as the leadership of each department.”





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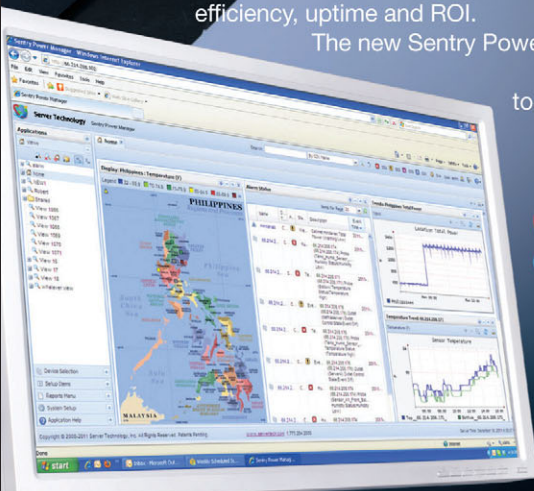
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# Refresh Your Network

Be Sure To Keep Today’s Needs & Tomorrow’s Technology In Mind

**EVEN IF YOUR ENTERPRISE** is operating fine with the 1GbE or 10GbE pipe now in place, that doesn’t preclude you from turning an eye toward 40GbE and 100GbE implementations. As Info-Tech research analyst Derek Silva points out, an enterprise that’s considering, say, a server room refresh in the near future is better off upgrading to 40GbE- or 100GbE-capable equipment even if not presently vs. having to “swap out a core network switch down the road.” Although doing such long-term network planning can be a pain, he says, the severity of such decisions—“essentially it affects the entire company and what it’s capable of doing”—is massive. In other words, “You really can’t mess this up,” Silva says. To that end, consider the following advice when planning your network.

✓ *Future Proof*

Mike Hronek, networking solutions architect at CDW ([www.cdw.com](http://www.cdw.com)), says that when planning future network needs, you should think five to seven years out. “Based on historic evolution of network standards, that time frame is just about how long it takes for a new standard to really take off on many networks,” he says. Although there was an eight- to nine-year gap between the maturity of 1GbE to the wide popularity of 10GbE, Hronek expects a shorter timeline for widespread adoption of 40GbE. As such, “organizations should look for models that can be upgraded, which will hopefully limit costs associated with faster speeds when the time to upgrade comes,” he says.

Silva says that any organization going through a refresh should future-proof itself as much as possible, including by purchasing switches capable of accommodating 40GbE and 100GbE ports. Further, buying cabling now that’s capable of 40GbE or 100GbE and “bypassing the \$10, \$25, maybe \$100 in savings you might see later” is worth the effort you’ll save, he says.

Rob Enderle, principal analyst for Enderle Group, suggests keeping consolidation in mind when future-proofing. “Higher bandwidth should drive economies of scale more strongly toward data center consolidation and centralization and away from distributed models,” he says. “Planning for this change in advance should help make it more seamless and less painful.”

✓ *Seek Advice*

The road leading up to actually buying next-generation network gear should be filled with staying current on standards, protocols, and vendors’ proprietary features. Doing so, Enderle says, can save time in narrowing down vendors and exactly what equipment is available that can meet specific needs. “Like a fine wine, you don’t implement a standard before it’s time, but you

✓ *Don’t Settle*

Although “anything is better than what we have right now” might make sense, “it’s simply not true,” says Info-Tech analyst Derek Silva. “Upgrading to 100GbE because we have 1GbE now will not instantly result in a better network.” A better approach is having a thorough list of requirements necessary to reach an ideal end state. “If you have network equipment that’s 10 years old, doesn’t even support 1GbE, and all the rest, you might be thinking to yourself, ‘anything will be an improvement,’” he says. “But when you get a holistic picture of what the various products are actually capable of now, paired with some sort of vision of what your network should be capable of doing for the next 10 to 15 years, putting that all together is the ideal state.”

✓ *Rate Vendors’ Preparedness*

Vendors are very different where their network equipment’s level of readiness is concerned, says Info-Tech analyst Derek Silva. “Some are way behind the curve in terms of actually having products on the market that are ready for 40GbE and 100GbE, whereas others are ready across the board, at least at the aggregation and core layers, which is really where it’s needed right now, or will be,” he says. Noting how many of a vendor’s products are 40GbE- and 100GbE-ready “may surprise you in a negative way,” he says. Although this issue will dwindle, he says, “if you’re ready for the move now, it’s definitely a question you need to ask.”

BONUS TIPS:

✓ *Who benefits most now?*

Beyond colocation and cloud providers, highly centralized data centers, and enterprises planning to consolidate data centers or new builds, a good candidate for moving to 40GbE is a data center with a high concentration of virtual servers. “Virtualization leads to high volumes of traffic between servers and having the infrastructure in place to support that will be beneficial,” says Mike Hronek, networking solutions architect at CDW ([www.cdw.com](http://www.cdw.com)).

✓ *Take your time.*

Spending the time necessary to implement a network refresh correctly can result in time and money savings later. “Much of the cost connected to any technology change is the result of mistakes that result in the firm buying what they don’t yet and may never need and in undoing bad decisions,” says Rob Enderle, principal analyst of Enderle Group.

don’t want to be excessively late, either,” Enderle says. “Otherwise, you’ll likely pay a premium for aging technology. Stay informed.”

Resources to track include various analysts well-versed in the market, who may offer vendor comparison and weighting tools. Companies with a clear “end state” in mind can particularly benefit here, Silva says. “If you do know [your end state], you don’t have to invest as much time to talk to vendors about what they can do for you.” Silva also suggests reaching out to channel partners that may possess information not generally available. Ultimately, Silva says, narrowing a list of potential vendors to three instead of six or more “will save you days if not weeks.”

Additionally, network administrators and/or infrastructure managers must have a vision for the next 10 years for what they want the network to be able to support, Silva says. “That will involve talking with other folks in IT and even some C-level execs to see where they’re going so you don’t potentially bungle this multimillion-dollar decision,” he says.

✓ *Bargain For Better Prices*

Given how things have been going over the past few years, Silva says, vendors are willing to “get very aggressive on pricing if you push them.” If a vendor knows competitors are in the picture, he says, “you’ll get discounts regardless.” Pin your list down to two vendors that you’ll be happy with regardless and “you can play them off each other for a little while and achieve some very deep discounts on the hardware,” he says. “You just have to know what you’re doing.”

Where the ideal time to buy is concerned, Enderle says it’s helpful to have someone you trust who is active in the standards efforts in on the decision “so they can tell you of the pitfalls and help you with timing,” he says. “This ensures you neither buy early nor late.”

✓ *Buy Better Fiber*

According to Hronek, “Organizations should have already run or be prepared to run fiber where they will want the faster speeds. For the next-generation standards, this is normally not going to be the same fiber people used for 1Gbps. The fiber will need to be of better quality and likely have different specifications.”

Overall, Hronek advises “if an organization is looking to add or replace fiber, they will want to use OM4 fiber,” which he says will enable running 40Gbps and 100Gbps at longer distances than most of the fiber on the market today. This is similar, he says, to what we saw with 10Gbps. “Many networks today have a lot of OM1 or OM2 fiber, but OM3 is really the best for 10Gbps,” he says. “So, if an organization wants to run new fiber, for whatever reason, they should look at OM4 to make the future easier.” ■



SIX QUICK TIPS

# Optimize Your Servers

## Get More Performance From Existing Setups

**WHEN YOU START TO NOTICE** the performance of your servers dipping even a little bit or you see a new server that would be faster than the one you currently have, your knee-jerk reaction may be to go for a complete infrastructure overhaul. But it can be a costly undertaking to regularly upgrade your servers when you aren't getting the performance you want or every time new server technology is introduced.

Before you opt for a potentially expensive investment in new infrastructure, consider some of the simple ways you can optimize your existing servers and increase overall performance. Here are a few tips that will help you decide if you can optimize your existing servers or if your best option is to upgrade.

### ✓ Understand Performance Indicators & Predict Possible Issues

Before you consider optimizing or upgrading your servers, you should first make sure that there are actual reasons to do so or that there is a potential for problems in the future. There are tell-tale signs, such as noticeable slowdowns in performance, data bottlenecks, and others, but you may need to go more in-depth to find other indicators.

"Hardware health metrics are a good leading indicator of future server performance issues and often go ignored when monitoring server health," says Suku Krishnaraj, senior vice president of product strategy at SolarWinds ([www.solarwinds.com](http://www.solarwinds.com)). "Server performance tools can discover processes and report out hardware metrics."

Another indicator to look out for is the capacity of your servers. Theoretically, all servers have a maximum capacity of 100%, but the main goal should be to get at least 70% if not 80% from all of your servers. This ensures that you are getting the most out of your hardware and you don't resort to upgrading when it isn't necessary.

"If you've invested money in servers, make sure they are running near 70% capacity during daily busy times and at least 40% during low periods so that you are sure you are getting everything you can from that hardware," says David Leith, technical product manager at Uptime Software ([www.uptimesoftware.com](http://www.uptimesoftware.com)). "We find that a large number of companies we work with run their servers below 30% capacity and are still adding more servers; this is a huge waste of resources."

### ✓ Invest In Monitoring Software

Another way to decide whether you need to make adjustments to your servers and whether those adjustments are making a difference is to purchase monitoring software for both servers and applications. This will let you know if your servers are performing as they should be in multiple areas as well as tell you how many resources your applications are using. These solutions serve as real-time monitoring tools and much more.

"Server monitoring tools with deep visibility into hardware, virtualization, and

### ✓ Perform Tweaks To Avoid Massive Upgrades

To avoid upgrading entire servers, there may be a few simple tweaks you can make or simple tools you can take advantage of to get a little more out of them. "Basic workload analysis, balancing, and tuning cost nearly nothing outside of labor," says David Leith, technical product manager at Uptime Software ([www.uptimesoftware.com](http://www.uptimesoftware.com)). "Some capacity tools are expensive initially but will save you money by delaying nonessential upgrade costs or finding untapped resources. They can pay for themselves many times over in a growing data center."

### ✓ Consider End-User Monitoring Tools

"Keeping servers up and running is a good goal, but it doesn't guarantee customer service, especially if you are providing services via the Web," says Suku Krishnaraj, senior vice president of product strategy at SolarWinds ([www.solarwinds.com](http://www.solarwinds.com)). "All servers may be 100% available, but your end users may still be unable to log in to their portal because of the applications not being optimized. In these cases, especially if you have limited budget, you may want to look at end-user monitoring tools. They tend to be an inexpensive and extremely effective way to measure availability and performance of your Web from an end-user perspective."

### BONUS TIPS:

#### ✓ Defragment your hard drive for a boost.

Hard drives in servers can often get bogged down with the constant reading and writing from intense applications. If you haven't defragmented your drives for an extended period of time, it could help explain a sudden drop in overall server performance.

#### ✓ Check for weak links in your server farm.

According to Sean P. McDonough, product manager at Idera ([www.idera.com](http://www.idera.com)), "the most important thing to understand is that a server farm's overall performance is only as strong as its weakest link." He suggests monitoring your servers and comparing them side by side to ensure that all of them are running at their highest capacity.

application workloads are essential for understanding your environment and making educated decisions about hardware upgrades," Leith says. "They can also provide early warning alerts when capacity problems are going to impact your mission-critical applications."

To ensure that you are getting that extra performance without taxing your hardware even more or spending unnecessary money, Krishnaraj recommends looking at both agent-based and agentless server monitoring tools, but says that agentless solutions are better for SMEs because they "remotely collect metrics without consuming hardware resources" and provide a more accurate view of server performance.

### ✓ Know What Applications Are Running On Which Servers

Sometimes improving server performance is as simple as understanding your applications and how much server capacity they use. One way to lower the amount of hardware resources an application uses is to virtualize it. If that isn't an option, take a look at the applications on each server and determine whether they are truly necessary or are simply a burden on your servers.


"If your [server] farm is being used purely for collaboration and sharing, there isn't any need to run business intelligence-related service applications," says Sean P. McDonough, product manager at Idera ([www.idera.com](http://www.idera.com)). "Run only the service applications you need in order to stay lean. If you need additional service applications later on, you can always provision them at that time."

### ✓ Know When It's Time To Upgrade

Krishnaraj, Leith, and McDonough share some instances where a server upgrade may be necessary or, at the least, advisable:

"If you have taken the performance optimization steps above and your CPU and memory usage is still at about 80% and you've exhausted your memory upgrade slots, it's definitely time to invest in a new server," Krishnaraj says. "Another driver could be warranty expiration dates."

"Technology improves so quickly that any server over three years old may simply be cheaper and easier to replace than to upgrade," Leith says. "In environments where virtualization hasn't been utilized, it's almost always better to replace several outdated servers with a new virtualization-optimized server."

"The most common time to re-evaluate whether or not to start over is between SharePoint versions," says McDonough, specifically referencing SharePoint servers. "The raw minimum requirements for a SharePoint 2010 server, for example, are a 64-bit quad-core processor, 8GB of RAM, and an 80GB system drive. These are dramatically greater than the requirements for a SharePoint 2007 server, and many organizations who used SharePoint 2007 considered the migration period to be a good time to acquire new hardware." 



# Pick An Enterprise Tablet

Weigh App, User, Network & Other Considerations

**IT’S HARD TO BELIEVE**, but not that long ago some pundits questioned if tablets had a place in the enterprise. As Ojas Rege, vice president of strategy at MobileIron ([www.mobileiron.com](http://www.mobileiron.com)), says, however, in the past 18 months, tablets have “really opened up IT’s eyes for mobile’s potential for business transformation.”

Still, despite the increased presence of tablets in the enterprise, deciding which model to deploy can be fraught with complex considerations tied to users’ preferences, the unpredictability of the mobile space in general, and other factors. Lock the enterprise into a tablet that employees reject and doesn’t meet expanding needs in three months, and you’ve failed. To avoid such a scenario, consider the following tips.

✓ *Form A Strategy*

Although there are myriad tablet considerations to ponder—ease of use, TCO, security, network capabilities, form factor—determining which tablet can best meet users’ requirements is arguably the most important. “Enterprises should ask themselves, ‘Can my employees do everything they need to on these devices,’ ” says Christian Kane, Forrester Research analyst. Right now, he says, the answer is no for most firms, as most only have a small number of mobile apps. Thus, “tablets are mostly only fitting with certain employee types: sales, executives, and certain verticals such as retail. These are the groups that are highly mobile and don’t require too many applications to get their jobs done.”

Jack Gold, analyst at J. Gold Associates, says many companies know they have to deploy and support tablets “because the boss says so,” but “they really don’t have a strategic plan in place. That’s really what’s lacking for most companies.” Rather than looking at the tablet first, he says, look at the application you want to deploy on it, what you want that app to do, and if you’ll build or buy the app. Then decide what device best fits the model.

Rege suggests first defining the tablet’s context of usage. For example, will it be used outdoors where glare is an issue or by an employee who wears gloves and predominantly needs swipe commands? Then define what the optimal user experience will be, such as logging utility readings in a dark basement with no connectivity or processing business analytics while on a plane. Overall, Rege says, stop and ask how the tablet is really going to be used because your choice could really be different based on that.

✓ *Consult The End User*

Gold equates selecting a tablet to evaluating any other piece of equipment that you’re

going to deploy. While users’ desires shouldn’t be the overwhelming driving force in a decision, he says, the user’s experience and apps they’ll use should be. “Usability is key,” he says. “End users are not very receptive to badly

functioning apps. If I have to put in information and go through 15 screens to do it, I’m not going to use it. I’m going to find a way around it.”

Rege believes that gauging users’ tablet preferences can’t be done with a

survey, as it’s difficult describing user experiences in a fill-in-the-blank survey. Instead, he suggests forming a small pilot group to use the tablets for a period of time and note experiences with battery power management, ease of use, and application capabilities.


Many enterprises, Kane says, are conducting workforce segmentation projects to engage employees and determine how the tablets work, the tools they need, and tools they’d like. “This helps these organizations get a much better handle on which employees need which access to data [and] applications, and that really need a tablet. [Tablets] aren’t going to be for everyone at this stage. I think that’s the best thing to take away—tablets are an addition to your overall device fleet,” he says.

✓ *Analyze, Then Start Small*

Rather than base a tablet decision on the function employees will primarily perform, such as a sales associate taking orders, Rege advises analyzing everything the employee does because if the tablet program is going to be successful, “eventually that tablet will be used for almost everything that person does in the store.” Note the technical requirements those future usages will present, along with the application environment, how broad and rich the application toolkit is, and vendor support issues. “Sometimes, that’s not the tablet manufacturer. That might be some outsourced service provider, and they may have way more technical support for one problem than for another,” he says.

As for the actual deployment, Rege says, start small. “The way to get ROI is not to suddenly go and do the monolithic application on 2,000 tablets and train your entire field force at once,” he says. Instead, start with a smaller app, get used to it, obtain user feedback, and then start working on your production.

✓ *Beef Up Wi-Fi*

Where the enterprise’s network is concerned, Rege says, the tablet has to be “awesome at Wi-Fi” and offer robust, secure VPN capabilities. In this dimension, he says, tablet OSes differ. Typically, though an enterprise may have cellular connectivity, office and warehouse environments especially will operate off of Wi-Fi, he says. “Make certain the tablet’s Wi-Fi capabilities are well-developed,” he says. Additionally, make sure the tablet supports VPN and that you can secure identity for that tablet. “So, if that device is getting onto your network through the wireless LAN over VPN, you really want to make sure it’s a device that you know” and that the tablet supports certificates, Rege says. 

✓ *Keep Flexibility In Mind*

Ojas Rege, vice president of strategy at MobileIron ([www.mobileiron.com](http://www.mobileiron.com)), says flexibility is the single most important issue when selecting a tablet. Regardless of the application you’ll put on the tablet now and how users might use it in the next month, he says, “mobile moves so fast, there’s a really good chance I’ll want to expand the kind of usage I have of that tablet.” The tablet must be able to expand to support the program the enterprise develops around it in terms of apps and business processes. “Where I see companies running into problems is when they feel like they’ve made a wonderful decision for one particular problem, but then realize in three months the problem is bigger, the usage is bigger, and they can no longer expand the way they’d like to and then they have to revisit their investment,” he says.

✓ *Users May Solve Problems Themselves*

When tablets initially entered the enterprise, says Ojas Rege, vice president of strategy at MobileIron ([www.mobileiron.com](http://www.mobileiron.com)), many IT departments worried they’d get flooded with support calls. “Honestly, we just haven’t seen that,” he says. Instead, users’ advancing technical knowledge and personal attachment to their tablets have led them to try to solve many problems themselves. If this fundamental trend continues, Rege says, it has huge positive implications for organizations in that help desks are becoming the last resort for end users.

BONUS TIPS:

✓ *Keep An Open Mind*

The worst approach when selecting an enterprise tablet, says Jack Gold, analyst at J. Gold Associates, is saying, “‘OK, the iPad is the most popular device out there, so I’m just going to go buy one.’ Or worse, the IT director says, ‘I hate Apple. I love Android, so everyone gets an Android.’ Stuff like that happens.” Keep an open mind and do what’s best for the business, Gold says.

✓ *Prepare For Change*

Ojas Rege, vice president of strategy at MobileIron ([www.mobileiron.com](http://www.mobileiron.com)), stresses that no matter the tablet you select, you’ll likely be revisiting the decision in 12 months, so “get ready for it and don’t view it as a failure.” Traditionally, he says, IT departments view device lifecycles as three to five years. “In mobile it’s just not. If you don’t change your mindset to accept that, the world isn’t going to be a very nice place to be.”



SIX QUICK TIPS

# Hot Aisle/Cold Aisle Containment

Improve Energy Efficiency While Lengthening Equipment Lifespans

**IF YOUR DATA CENTER** is considering a move toward hot aisle/cold aisle containment, it's not alone. Where improving energy efficiency in a potentially effective manner is concerned, this approach is rapidly becoming more popular, and for a good reason. By controlling airflow so that hot and cold air don't mix, data centers are lengthening the lifespan of their equipment while improving equipment performance. Further, cutting energy costs, increasing server density, and other benefits are possible. When considering installing such a setup, give the following tips some thought.

✓ *Decide If You're A Good Fit*

As mentioned, aisle containment can enable enhanced cooling efficiency while increasing energy efficiency. Kris Domich, Dimension Data Americas ([www.dimensiondata.com](http://www.dimensiondata.com)) principal consultant of data center consulting, says generally excessive heat causes thermally triggered shutdowns of some equipment and reduces the longevity of sensitive components. The result is shutdowns and failures leading to service outages that potentially can hinder or stop productivity and processing transactions. "Aisle containment can provide a level of protection against such outages, as well as allow organizations to move to higher-density platforms that tend to provide significantly more processing and storage capabilities than equipment of lesser density," Domich says. "Ultimately, this can drive a smaller data center footprint and decrease the need for more space over the long term."

Bob Mobach, Logicalis director of data center solutions ([www.us.logicalis.com](http://www.us.logicalis.com)), says, in principal, everyone is a good candidate for a containment system; however, there is some confusion at times about what is the best containment strategy. "Cold/Hot? Both apply, and both can make sense depending on the existing conditions," he says. Domich says generally aisle containment is used in environments with power-dense equipment racks, such as those consuming 8 to 9KW (nominal) or more. There are cases, however, where aisle containment is used where the nominal power draw is less, such as if room geometry or the lack of an efficient hot-air return path compromises the efficiency of heat removal. Overall, though, Domich says "aisle containment can significantly increase the efficiency and effectiveness of cold air supply and heat removal—regardless of the power draw. However, it may be an unnecessary expense in rooms that are being cooled effectively without it."

✓ *Know The Keys To Success*

Mobach says the path to a successful containment system

begins with defining strong policies of use. "IT has a tendency to 'rig' things up in times of pressure and never change it to a proper state," he says. "That means that all consolidated efforts of containment and cleaning up the infrastructure oftentimes go right by the wayside a few months down the road." Mobach suggests creating ITIL-based policies and adopting a containment strategy within them.

Similarly, Domich says understanding requirements and choosing all necessary components for an effective solution are

key. "Many data centers will find that they have a sufficient supply of cold air and air pressure but lack a dedicated hot air return path," Domich says. Hot spots in various data center areas, for example, are symptomatic of poor heat-removal abilities, he says, "thus, containing hot aisles may make the most sense." If the data center isn't using precision cooling (row-based CRACs, for example), aisle containment may not be enough, Domich says. For example, "ducting the hot aisle back to the CRAC inlets may also be required."

✓ *Decide What You Need*


Aisle containment options range from those designed specifically for particular rack systems to those entirely customized and able to accommodate multiple vendors' racks. When considering solutions, Domich says, "It's important to consider how you'll handle cable management and whether racks are uniform enough to implement a common ceiling." Especially important is determining if you need to modify or introduce cable-management needs and if disconnecting cables is required for the aisle-containment installation. IT must also first verify if the volume of supply air and evacuation of exhaust air are adequate for a contained aisle, Domich says.

Mobach advises not to sell containment as "a huge ROI to the business unless you have done your homework." The art of containment, he says, goes along with a complete system, "meaning that your HVAC should be updated/adjusted to make the best use of a containment system." If the HVAC is old and doesn't have variable-speed drives, for example, the containment may only be so effective, he says. Still, he says, everyone should consider containment because "higher return temperature through separation will increase the cooling capacity of even the legacy HVAC equipment, thus making your data center a better place."

✓ *Don't Discount What You Already Have*

When planning an aisle containment implementation, Mobach says to include facilities in discussions, as this group often handles energy bills, and "any cost savings and related ROI would need to be coordinated with them to show the real value." Elsewhere, Mobach says IT often believes legacy systems shipped in custom enclosures aren't well-suited for containment. Many of these systems, however, can be removed from their "legacy, non-eco-friendly enclosures to fit a well-suited, pre-staged containment data center environment," he says.

Mobach says IT should also set policies for situations in which it invests in a containment solution involving pre-staged cabinets. Here, "IT should force vendors to comply with this design and make this part of the decision-making process on what servers, storage, and other manufacturers to partner with. You'd be surprised what's possible when clear expectations are set up front," he says.

Konkana Khaund, Frost & Sullivan industry manager, says in some data centers operating under constrained budgets and with legacy systems and a goal to improve data center energy efficiency, IT has supplemented its current infrastructure with hot aisle/cold aisle containment. "But success of this method varies on a case-to-case basis," Khaund says. Factors influencing success, he says, include whether there's the right quantity of perforated tiles in use to optimize performance and if there's a direct path for return air from the hot aisle to the precision cooling units. 

✓ *Have A Thorough Understanding*

Mike Bullock, lead engineer at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)), says that some form of containment is being implemented in most new projects his company sees. The advantages for both approaches are the same: increased cooling and heat removal efficiency and reduced overall costs. Hot aisle containment directs the hot exhaust air back to the cooling source, keeping it isolated from the rest of the room, and is considered easier to implement as a drop-in solution into an established room. Cold aisle containment directs the cold air to the rackmounted equipment intake area in front and requires careful planning and design for floor height, vented tile locations, CRAC locations, and hot air return.

✓ *Hot Or Cold?*

"We are still seeing a split between proponents for the hot vs. the cold aisle containment design, but the goal and end result is the same," says Mike Bullock, lead engineer at Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)). "Either design seems to be considered by all to be an improvement over the traditional approach."

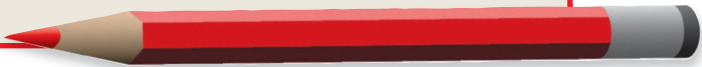
BONUS TIPS:

✓ *Seal Everything*

"The object is to contain and separate exhaust air from intake air," says Bob Mobach of Logicalis ([www.us.logicalis.com](http://www.us.logicalis.com)). This means sealing the cabinet's outer parameters and access panels but also internal spaces, such as unused rack unit spacing and the area between the outer cabinet and the mounted equipment. "The better the seal, the better the performance, as air will find its way through the smallest openings to decrease the efficiency," he says.

✓ *Apply A Quick Fix*

Bob Mobach, of Logicalis ([www.us.logicalis.com](http://www.us.logicalis.com)), says in older data center environments, quick-fix products can do a good job of containment. "These curtain-type containments are often easy to implement and pretty cost effective, yet do a great job," he says.





# Network With Your Peers At These IT Training & Association Meetings Across The United States

MAY

**AITP Akron**

May 22  
Akron, Ohio  
www.akron-aitp.org

**Exchange 2010**

May 22, 10 a.m. to noon  
New Horizons South Dakota  
4610 Technopolis Drive  
Suite 100  
Sioux Falls, S.D.  
register.nhcomputerlearning.com  
/Events/

**SpecTECHular 2012**

May 22  
New Horizons Colorado  
10303 E. Dry Creek Road, Suite 100  
Englewood, Colo.  
register.nhcomputerlearning.com  
/Events/

**ISSA**

**Baltimore**

May 23  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

JUNE

**SpecTECHular 2012**

June 7  
New Horizons Dallas  
150 W. John Carpenter Freeway  
Suite 100  
Irving, Texas  
register.nhcomputerlearning.com  
/Events/

**AITP**

**Pittsburgh**

June 11, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP**

**Washington, D.C.**

June 14  
Alfio's La Trattorio Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**SpecTECHular 2012**

June 16  
New Horizons Cincinnati  
10653 Techwoods Circle  
Cincinnati, Ohio  
register.nhcomputerlearning.com  
/Events/

**Organization In Outlook  
Made Simple**

June 19, 10 to 11 a.m.  
New Horizons South Dakota  
4610 Technopolis Drive, Suite 100  
Sioux Falls, S.D.  
register.nhcomputerlearning.com  
/Events/

**AITP Atlanta**

June 21, 5:30 to 8 p.m.  
Crowne Plaza Ravinia  
4355 Ashford Dunwoody Road  
Atlanta, Ga.  
www.aitpatlanta.org

**AITP Akron**

June 26  
Akron, Ohio  
www.akron-aitp.org

**ISSA Baltimore**

June 27  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**SpecTECHular 2012**

June 28  
New Horizons Dayton  
1890 Commerce Center  
Fairborn, Ohio  
register.nhcomputerlearning.com  
/Events/

JULY

**AITP Pittsburgh**

July 9, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP Washington, D.C.**

July 12  
Alfio's La Trattorio Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**SpecTECHular 2012**

July 17  
New Horizons Fort Worth  
4100 International Plaza  
Suite 200  
Fort Worth, Texas  
register.nhcomputerlearning.com  
/Events/

**SpecTECHular 2012**

July 24  
New Horizons San Antonio  
2727 NW Loop 410  
Suite 103  
San Antonio, Texas  
register.nhcomputerlearning.com  
/Events/

**SQL Coding Best Practices  
and Shortcuts**

July 24, 9 to 11 a.m.  
New Horizons South Dakota  
4610 Technopolis Drive  
Suite 100  
Sioux Falls, S.D.  
register.nhcomputerlearning.com  
/Events/

**ISSA**

**Baltimore**

July 25  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**SPTechCon**

July 25  
Boston, Mass.  
www.sptechcon.com

AUGUST

**AITP**

**Washington, D.C.**

Aug. 9  
Alfio's La Trattorio Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**SpecTECHular  
2012**

Aug. 9  
New Horizons  
Kansas City  
9611 E. Metcalf Ave.  
Overland Park, Kansas  
register.nhcomputerlearning.com  
/Events/

**AITP**

**Pittsburgh**

Aug. 13, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**SpecTECHular  
2012**

Aug. 21  
New Horizons  
Oklahoma City  
3010 NW 149th St.  
Oklahoma City, Okla.  
register.nhcomputerlearning.com  
/Events/

**ISSA**

**Baltimore**

Aug. 22  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org



**SpecTECHular  
2012**

Aug. 28  
New Horizons South Dakota  
4610 Technopolis Drive  
Suite 100  
Sioux Falls, S.D.  
register.nhcomputerlearning.com  
/Events/

**SEPTEMBER**

**AITP  
Pittsburgh**

Sept. 10, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP Washington, D.C.**

Sept. 13  
Alfio's La Trattorio Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**ISSA  
Baltimore**

Sept. 19  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**AITP Cornhusker**

Sept. 20, 5:30 p.m.  
Lincoln, Neb.  
www.aitp.org/members/group  
.asp?id=75767

**AITP Akron**

Sept. 25  
Akron, Ohio  
www.akron-aitp.org

**Data Center World**

Sept. 30-Oct. 3  
Gaylord Opryland, Nashville, Tenn.  
www.afcom.com

**OCTOBER**

**Interop  
New York**

Oct. 1-5  
Javits Convention Center  
New York, N.Y.  
www.interop.com

**AITP  
Pittsburgh**

Oct. 8, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP  
Washington, D.C.**

Oct. 11  
Alfio's La Trattorio  
Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**AITP  
Cornhusker**

Oct. 18, 5:30 p.m.  
Lincoln, Neb.  
www.aitp.org/members/group  
.asp?id=75767

**ISSA  
Baltimore**

Oct. 24  
Concurrent Technologies  
Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**WPDevCon**

Oct. 24  
San Francisco, Calif.  
www.wpdevcon.net

**AITP Akron**

Oct. 30  
Akron, Ohio  
www.akron-aitp.org

**NOVEMBER**

**AITP  
Washington, D.C.**

Nov. 8  
Alfio's La Trattorio  
Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**AITP  
Pittsburgh**

Nov. 12, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP  
Cornhusker**

Nov. 15, 5:30 p.m.  
Lincoln, Neb.  
www.aitp.org/members/group  
.asp?id=75767

**ISSA  
Baltimore**

Nov. 28  
Concurrent Technologies  
Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**DECEMBER**

**Android  
DevCon IV**

Dec. 7  
San Francisco, Calif.  
www.andevcon.com

**AITP  
Pittsburgh**

Dec. 10, 5 to 8 p.m.  
Silvioni's Restaurant  
2125 Babcock Blvd.  
Pittsburgh, Pa.  
www.aitp-pgh.org

**AITP  
Washington, D.C.**

Dec. 13  
Alfio's La Trattorio Restaurant  
4515 Willard Ave.  
Chevy Chase, Md.  
www.aitpdc.org

**ISSA  
Baltimore**

Dec. 19  
Concurrent Technologies Corp.  
8530 Corridor Road  
Savage, Md.  
www.issa-balt.org

**AITP  
Cornhusker**

Dec. 20, 5:30 p.m.  
Lincoln, Neb.  
www.aitp.org/members/group  
.asp?id=75767

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# Tips For Buying Used & Refurbished Equipment

## Check Out Asset Recovery & Disposal Channels

When companies downsize or go out of business, it's common for banks, auction houses, and salvage companies to be involved in getting rid of equipment in the hope of recovering some cash. The condition of the equipment depends on how long it's been sitting idle and where it's been stored, among other factors. Each company has its own method for preparing equipment for disposal. "Some sell it as-is, and some do a good job of cataloging everything for disposal," says Phil Bettenburg, president of North American Systems International ([www.nasi.com](http://www.nasi.com)). Reputable resellers will give each component a comprehensive check-up before offering it for sale.

## What Testing Has The Used Equipment Undergone?

It's common for equipment to undergo more than one round of testing before it hits your loading dock. In most cases, equipment and parts are tested when they arrive at the reseller and then again before they're shipped out to you.

"The SME should make sure that equipment is tested just before it is shipped to them," says Stephen Jaynes, COO at xByte Technologies (888/929-8348; [www.xbyte.com](http://www.xbyte.com)).

"If the refurbisher only tests when they originally received the equipment, they will miss issues that may occur with the customer's specific hardware configuration and general failures while sitting on a shelf."

## Complete A Thorough Audit To Locate Equipment You No Longer Need

According to Brett Femrite, director of business development for Rackmount Solutions (866/207-6631; [www.rackmountsolutions.net](http://www.rackmountsolutions.net)), "You should identify and know what equipment you have on hand, what's operational, and what's been abandoned or is under- or unused. You can't do much to get rid of unused equipment until you have completed a thorough audit and identified what can be removed." The inventory auditing process can be both tedious and time-consuming, as you'll want to check out all types of equipment in your data center, including such things as switches, fans, shelves, cables, and wires.

## Ask Your Vendor For A Trial Period

Physically inspecting equipment before you buy it can be difficult, especially if your vendor isn't local. However, you may be able to swing a brief trial period to confirm that everything is in order. "The customer has the right to request a period of time to test and evaluate equipment and return [it] if necessary," says Morris Scott, president of DMD Systems Recovery (877/777-0651; [www.dmd.com](http://www.dmd.com)).

Test and inspect the components right away and contact the vendor if you find any defects.

The payment method you choose could also offer safeguards, such as the dispute resolution available through most credit card companies. Depending on your company's buying position and relationship with the vendor, you may also be able to get a sample piece of equipment. This is often a good route for data centers looking for multiple identical components or considering a shift to a new manufacturer or platform.

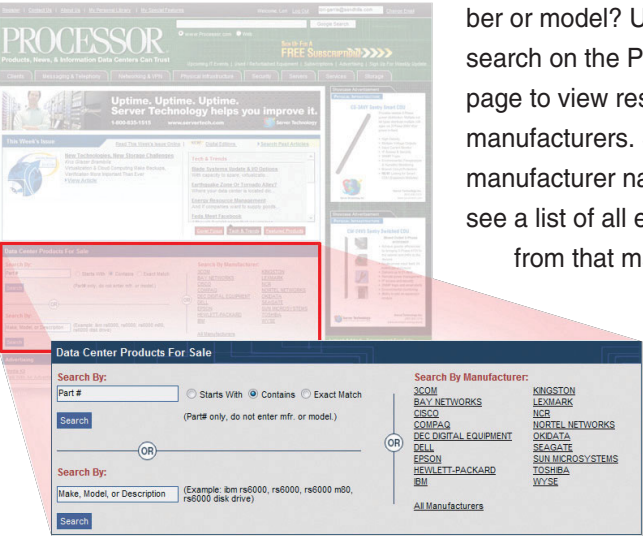
## Check For Legal & Regulatory Compliance Issues

Depending on your data center's line of business, the disposal service you use may need to meet specific certifications for you to be legally covered. "Make sure that the company you do business with has the right certifications and credentials, such as ISO 9001 [and] ISO 14001 registration; [that the company is] MOE and EPA regulated; and that they have a history of compliance with all applicable environmental laws and regulations," Femrite says. "You should also be sure they have safeguards in place to protect company and personal information through the entire process." Other key legal steps should include the physical security of the device throughout the entire used equipment process.

# USE PROCESSOR.COM TO FIND USED & REFURBISHED EQUIPMENT

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with Processor's online Data Center Products For Sale Database.

From Processor's home page ([www.processor.com](http://www.processor.com)), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.



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# Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry. Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

PHYSICAL INFRASTRUCTURE




Staco Energy was founded in 1937 and is one of the longest-lasting innovators of power products and services in the world. Our recent innovations have created the foundation for entry into the SMB data center marketplace through pioneered design and expertise. We are committed to providing you with the best tailored power solutions for your needs.

**Products Sold:**

A full line of UPS products, including our new FirstLine P 65 – 250kVA UPS, FirstLine PL 10 – 100kVA UPS, FirstLine BMS, and related accessories and services.

(866) 261-1191 | [www.stacoenergy.com](http://www.stacoenergy.com)

PHYSICAL INFRASTRUCTURE




Upsite, the “Pioneering Company in Airflow Management Solutions” was founded by Ken Brill, who established the Uptime Institute, a think tank dedicated to identifying efficiencies within data centers. Upsite’s LOK Family of energy-efficient solutions are engineered to optimize the data center. This sets Upsite apart. Upsite solutions empower data center managers to leverage cost savings for data center optimization (i.e. releasing stranded capacity, increasing server density, improving system reliability & reducing energy consumption).

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- HotLok
- AisleLok
- EnergyLok

(505) 798-0200 or (888) 982-7800 | [www.upsite.com](http://www.upsite.com)

PHYSICAL INFRASTRUCTURE




PDUdirect.com is a Master Distributor of select Server Technology PDUs for server and networked environments. PDUs Direct’s basic, metered, and switched Rack PDUs provide local and remote power management, power monitoring, and environmental monitoring. We pride ourselves in offering industrial-grade quality products at the lowest prices, with the fastest shipping (most orders shipped within 24 hours) and simplest purchase process. We are the Power Behind the Business.

**Products Sold:**

A complete line of metered and basic PDUs, and 20A switched PDUs.

(888) 751-7387 | [pdudirect.com](http://pdudirect.com)

PHYSICAL INFRASTRUCTURE



AVTECH Software, founded in 1988, is focused on making the monitoring and management of systems, servers, networks, and data center environments easier. AVTECH provides powerful, easy-to-use software and hardware that saves organizations time and money while improving operational efficiency and preparedness. AVTECH products use advanced alerting technologies to communicate critical status information and can perform automatic corrective actions.

**Products Sold:**

A full range of products that monitor the IT and facilities environment, including temperature, humidity, power, flood, room entry, and UPS

(888) 220-6700 | [www.AVTECH.com](http://www.AVTECH.com)

PHYSICAL INFRASTRUCTURE




Rackmount Solutions’ mission is to listen to the IT engineer’s specific needs and deliver superb-quality, high-performance products through continuous product innovation and operational excellence. We pride ourselves in providing quality customer service, products that fit your IT requirements, and solid value for your money.

**Products Sold:**

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- Shockmount shipping cases
- Bulk cable

(866) 207-6631 | [www.rackmountsolutions.net](http://www.rackmountsolutions.net)

PHYSICAL INFRASTRUCTURE



Sensatronics was found in 2001 to do one thing really well – temperature monitoring. Our solutions notify our customers of potentially catastrophic environmental events and allow them to address alerts proactively. Our open architecture allows us to run on any operating system through a variety of vendor software programs making us adaptable to new or current customer environments. Due to the simplicity of our design, users can install and configure the units themselves within minutes.

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- Wallmount temperature and environmental monitors
- Senturion rackmount environmental intrusion detection system and probe

(800) 633-1033 | [www.sensatronics.com](http://www.sensatronics.com)

PHYSICAL INFRASTRUCTURE




Server Technology is committed to the PDU market with the largest group of engineers dedicated to power distribution and other solutions within the equipment cabinet. Advancements in device power monitoring help data centers monitor and improve their efficiency, and continuous research and development is fueled by companies that look to Server Technology for their custom cabinet power solutions.

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A complete line of cabinet PDUs, including Per Outlet Power Sensing (POPS), Rack Mount Fail-Safe Transfer Switch, Console Port access with remote power management, Switched, Smart, Metered, Basic, and -48 VDC

(800) 835-1515 | [www.servertech.com](http://www.servertech.com)

PHYSICAL INFRASTRUCTURE



PDU Cables is the leading supplier of power distribution cables assemblies to data centers in North America. PDU Cables has been serving this industry since 1981 and is the first independent cable assembly company to introduce colored conduit into the power distribution cable market, the first to get UL 478 listing, and the first to introduce the Power Cable and Equipment Configurator software tool. The company is centrally located in Minneapolis, Minn., allowing it to offer 24-hour turnaround and shipping time of just one or two days to almost any United States destination.

**Products Sold:**

A range of power cables, cable seals, and power cord assemblies.

(866) 631-4238 | [www.pducables.com](http://www.pducables.com)

PHYSICAL INFRASTRUCTURE




ITWatchDogs manufactures environmental monitors that help prevent downtime from climate- and power-related issues. Its Web-enabled monitors let users keep an eye on remote conditions from a secure Web interface and receive SNMP, email, SMS and voice call alerts when specified alarm thresholds are exceeded for external factors, including temperature, humidity, airflow, power failure, smoke, water detection, and more.

**Products Sold:**

- Climate monitors
- Power monitors
- Digital and analog sensors
- IP surveillance cameras

(512) 257-1462 | [sales@itwatchdogs.com](mailto:sales@itwatchdogs.com) | [www.itwatchdogs.com](http://www.itwatchdogs.com)

PHYSICAL INFRASTRUCTURE




Critical Power Exchange buys and sells mission-critical backup power and cooling system equipment typically used in computer rooms, datacenters and other industrial applications. Founded in 1993, CPE is your single point of contact for disposal or acquisition of reliable datacenter, environmental and mission-critical power equipment.

**Products Sold:**

- Generators
- Transformers
- UPS Systems
- Power Distribution Units
- Raised Access Flooring
- Switchgear
- Fire Suppression
- Air Conditioners

(877) 315-4176 | [www.criticalpower.com](http://www.criticalpower.com)

PHYSICAL INFRASTRUCTURE



BayTech was founded in 1976 and, since the 1990s, has developed unique products for remote power management. The company uses printed circuit board instead of wires for a better, more resilient connection between the data center equipment and the receptacle. BayTech provides an extensive Web site with brochure downloads, warranty information, and reseller support and also offers evaluation units for data centers.

**Products Sold:**

- Power control, distribution, management, and metering
- Power transfer switches
- Console management and remote site management

(800) 523-2702 | [www.baytech.net](http://www.baytech.net)

PHYSICAL INFRASTRUCTURE



Sensaphone has been designing and manufacturing remote monitoring systems for more than 25 years and has more than 300,000 of its products in use. Sensaphone's product lineup offers a full range of devices with a broad number of features and applications designed to monitor your entire infrastructure and alert you to changes. All product engineering functions, including hardware and software design and circuit board layout and assembly, are performed at the Sensaphone facility in Aston, Penn.

**Products Sold:**

Remote monitoring solutions that provide email and voice alarm notification for problems related to temperature, humidity, water detection, power failure, and more.

(877) 373-2700 | www.sensaphone.com

PHYSICAL INFRASTRUCTURE



Based in New York City, Hergo Ergonomic Support Systems is an independent designer and manufacturer of enclosure cabinet solutions, technical computer furniture, and modular racking systems. The company's products are designed to promote organization in the workspace and to increase the productivity of computers, peripherals, and communications equipment. Hergo is known for its high-quality products and superior customer service.


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CLIENTS



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**Products Sold:**

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- Network With Spider
- Publish For CD/DVDs

- Web With Spider
- Engine For Win & .NET
- Engine For Linux

(800) 483-4637 | www.dtsearch.com

NETWORKING & VPN




CTI was founded by Methode Electronics in 1997 and during the past 13 years has provided data centers with innovative solutions. CTI has recently become the cornerstone of Methode's Data Solutions Group, joining forces with the Methode dataMate and OPTOKON divisions in supporting the data center and communication industries. In addition, our highly qualified professional services team can engineer and install the best solution to fit your needs.

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(888) 446-9175 | www.methode.com/data

SERVERS




Chenbro is a leader in enclosure solutions, selling its products primarily to system integrators and OEM and channel partners. The company's extensive research and development efforts help it to keep its competitive edge and maintain market leadership, with special focus on thermal, EMI, and acoustic solutions. Taiwan-based Chenbro has offices in the United States, UK, The Netherlands, and China.

**Products Sold:**

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(909) 947-3200 | www.chenbro.com

SERVERS



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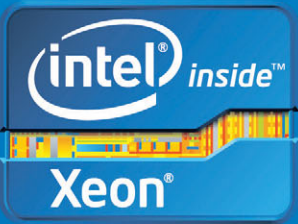
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